

FATAL AND NEAR-FATAL ACCIDENTS ASSOCIATED WITH
ENDOTRACHEAL ANAESTHESIAC. S. JONES, M.B., CH.B., *Head of Department of Anaesthesia, University of Cape Town*

Modern techniques of endotracheal anaesthesia were crystallized as a result of the work of Rowbotham and Magill.^{1,2} The method was widely adopted because it produced a quiet field for upper abdominal operations and permitted safe anaesthesia for operations about the head and neck.

Techniques Employed

The first essential for endotracheal anaesthesia is the ability of the anaesthetist to perform atraumatic laryngoscopy. This requires either a conscious and cooperative patient whose pharynx and larynx have been rendered analgesic by adequate topical analgesia, or an unconscious patient whose pharyngeal and laryngeal reflexes have been deadened by general or topical anaesthesia. To avoid the reflex cardiac disturbances induced by the strong local stimulus to the larynx which instrumentation produces,³ and the associated hypoxic disturbances induced by breath-holding and coughing efforts,⁴ adequate anaesthesia of the pharynx and larynx is a *sine qua non* of endotracheal intubation. To facilitate instrumentation the mouth must be opened as widely as possible. This can be achieved either by having the patient consciously cooperating or by utilizing the deeper planes of inhalational anaesthesia, which are ordinarily accompanied by a considerable degree of muscular relaxation. Not all the agents commonly used to induce anaesthesia are suitable for use in endotracheal intubation. Thiopentone, for example, while permitting very good initial relaxation of the jaw muscles, has very poor anaesthetic properties, so that the stimuli arising from the instrumentation produce reflex closure of the mouth and the glottis itself, rendering intubation difficult or impossible.

The second and third planes of the third stage of ether anaesthesia⁵ provide the ideal field for successful atraumatic endotracheal intubation, but in the opinion of many anaesthetists and surgeons the chief disadvantage of the use of this technique is the time taken to reach this degree of anaesthesia. In order to save themselves time and trouble a very large number of anaesthetists resort to methods which rapidly provide unconscious and completely relaxed patients. In one of these techniques the patient is given a dose of a barbiturate (usually thiopentone) by the intravenous route, followed rapidly by a dose of a muscle relaxant by the same route. The apnoeic patient is then inflated for a few breaths with pure oxygen, the endotracheal tube is introduced into the trachea and life is maintained by artificial respiration. Anaesthesia or analgesia is maintained in the lightest levels by the use of nitrous oxide and oxygen, supplemented by a variety of anaesthetic or analgesic agents.

While such methods are highly convenient for the ultra-

practical anaesthetist, they make little or no allowance for unsuspected drug sensitivities, for anatomical difficulties, or for failure of equipment. Nor do they pay much heed to the physiological disturbances which may ensue. The purpose of this article is to report very briefly on 6 patients who were in good health physically and considered to be normal anaesthetic risks, and who died or were seriously maimed following the use of such techniques. Since not one of these patients presented any medical or surgical explanation for their death or disablement, it must be presumed that the anaesthetic was in some way responsible. Five of these patients were anaesthetized by specialist anaesthetists. Four of the 6 patients unexpectedly developed cardiac arrest 20-50 minutes after the start of the anaesthetic. It is perhaps significant that the use of cardiac massage (artificial circulation) as a method of resuscitation has achieved prominence only in recent times.

CASE REPORTS

Five of these 6 patients were seen by me in consultation after the mishap. The remaining case was reported to me in detail by the surgeon who had operated on the patient. I wish here to emphasize that it is the 'fashionable' method which I am criticizing and not individual anaesthetists. However, I do not wish to make identification of the cases easy, and for this reason only the barest details are reported here. One patient was anaesthetized by a trainee attached to my department and this patient's story is reported in more detail.

Case A

Some months after sustaining a depressed fracture of the skull, a healthy young adult male, between 20 and 30 years of age, was scheduled for plating of the bony defect in the skull. Anaesthesia was induced with thiopentone and a relaxant was used to facilitate intubation. About 20 minutes later, before the operation was well begun, sudden cardiovascular collapse occurred. The anaesthetist had not recorded any difficulty with the conduct of the anaesthetic up to this time. Cardiac massage was immediately instituted and the arrested heart was re-started. The operation was abandoned and the patient was returned to his bed. He remained comatose and died within 48 hours of the start of the anaesthetic. No cause for the cardiac arrest was evident at autopsy.

Case B

Signs of mental retardation in a physically healthy child brought the parents and the child for a medical opinion. To exclude any physical cause for the mental defect, air studies of the ventricular system were advised. The child was anaesthetized with thiopentone and a relaxant was used to facilitate intubation. While preparing for the diagnostic procedure, the surgeon commented on the colour of the patient's skin. It was then found that the pulse and heart sounds were absent. Cardiac massage failed to restart the heart. An autopsy report is not available.

Case C

A healthy male adult, between 40 and 50 years of age, complained of weakness of the legs. A lesion in the lumbar region of the spine, compressing the spinal cord, was diagnosed, and laminectomy was advised. Anaesthesia was induced with thiopentone and a relaxant was used to facilitate intubation. The patient was prepared for operation and the incision was made. At this point cardiac arrest occurred. Cardiac massage was immediately instituted and the heart action resumed. The patient remained comatose and apnoeic so that artificial respiration was necessary. The patient died within 48 hours of the start of the anaesthetic. No autopsy report is available.

Case D

This healthy adult male, between 20 and 30 years of age, is still alive. He developed acute appendicitis and immediate surgery was advised. Anaesthesia was induced with thiopentone and a relaxant was used to facilitate intubation. However, efforts to pass an endotracheal tube into the trachea under direct vision, using a laryngoscope, failed. The endotracheal tube was then inserted via one nostril by the 'blind' technique and anaesthesia was continued. The patient showed some cyanosis for a considerable period of the operation. On regaining consciousness he was confused and developed athetosis which waxed and waned in degree, but was at times gross. This eventually abated and partial recovery ensued. The mental state of this patient has since deteriorated again. He has personality defects and is now subject to major epileptic seizures. He is not able to hold down a steady job.

Case E

A healthy male, aged 38 years, complained of pain and weakness of the left arm and left leg. Clinical and radiological evidence suggested a lesion in the cervical part of the spinal canal which was compressing the cord. The apprehensive patient was premedicated with 0.65 mg. atropine only. The anaesthetist administered 700 mg. of thiopentone in a 2.5% solution, and 80 mg. of gallamine triethiodide ('flaxedil'), both by the intravenous route, and nitrous oxide, oxygen and trichlorethylene by inhalation. An endotracheal tube was inserted into the trachea and the nitrous oxide, oxygen and trichlorethylene mixture was continued. Hyperpnoea developed. About 40 minutes after the start of the anaesthetic, the anaesthetist noted that the pulse was absent and the heart sounds could not be heard. Noradrenaline was administered by intravenous infusion and when, after 4 or 5 minutes, there was no response to this therapy, cardiac massage (artificial circulation) was instituted. The heart was restarted and the operation was completed. This patient is still alive but is demented.

Case F

A physically normal adult male, between 40 and 50 years of age, was troubled by headaches. No physical cause could be found for these, but neurological investigations suggested that there might be a lesion in the vicinity of the 4th ventricle. It was decided to explore the posterior fossa of the skull. Thiopentone was used to induce anaesthesia and a relaxant was used to facilitate intubation. Endotracheal anaesthesia was apparently uneventful and the operation, which did not disclose any lesion, was successfully completed. However, the patient did not regain consciousness and 6 weeks after the anaesthetic was still unconscious. Eventually, there was some improvement, but personality changes were evident. The patient would make no effort on his own behalf and slipped gradually downhill. Death finally released him from a physical and mental crippledom.

COMMENTS

Each one of these 6 patients received thiopentone, a muscle relaxant (either suxamethonium or gallamine triethiodide) and nitrous oxide and oxygen via an endotracheal tube. By calculations from the recorded gas-flow rates, all delivered gas mixtures contained at least 20% oxygen. All 6 patients were considered to be normal anaesthetic risks. Not one of the 6 patients was subjected to excessive

surgical trauma and no surgical accidents or complications were recorded. In only 1 patient (case D) was muscular relaxation required for the surgery which was contemplated or performed. It is thus extremely difficult to resist the conclusion that death or disablement was caused, either by the anaesthetic agents used, or the anaesthetic techniques, or both.

Deaths can and do occur with the use of the older and more conservative methods of anaesthesia. Thiopentone can cause death by respiratory depression or by cardiovascular disturbances, but in only 2 patients (cases D and E) did the total dose of thiopentone exceed 500 mg. Endotracheal intubation can also, of itself, lead to death, but this is rare. In more than half-a-million anaesthetics Beecher and Todd⁶ found only 2 deaths attributable directly to endotracheal intubation. These authors did find, however, that the anaesthetic techniques employing muscle relaxants were more hazardous to the patients than the older and more conservative techniques. Michael Johnstone⁷ pointed out that the muscle relaxants in common use do often cause changes in the normal electrocardiogram.

These cases reinforce the contention that the need for endotracheal intubation does not constitute an indication for the use of muscle-relaxing drugs. The inherent risks of suffocation (anoxia and hypercarbia) far outweigh the few minutes of time and the impression of dexterity which the anaesthetist gains. It would appear that the earlier dictum that relaxants should not be used until an endotracheal tube is properly in place, could well be revived.

It is contended by many that the anaesthetist, using controlled respiration in a completely paralysed patient, is better able to maintain oxygenation and remove carbon dioxide than is the patient himself, when anaesthetized in an old-fashioned way. Since the anaesthetist has no means of judging the partial pressures of either of these gases in the patient's alveolar air, or their tensions in the patient's arterial blood, I find it difficult to accept this rationalization of an inherently dangerous technique. It seems odd that Man should consider himself better able than Nature (or God) to sustain natural functions in his fellow men. While accepting the fact that Man is an odd animal, it is perhaps time to draw wider attention to the paraphrased advice of a distinguished American surgeon—'The bold anaesthetist should remember that it is the patient who runs all the risks!'

SUMMARY

Brief case reports are presented of 6 patients who suffered death or disablement following the use of currently fashionable methods of endotracheal anaesthesia. The circumstances strongly suggest that the technique is at fault.

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DIE OMVANG EN IMPLIKASIES VAN DIE PROBLEEM VAN ONGELUKKE

Die aandag van die algemene publiek en van die mediese professie in die besonder is gedurende die afgelope tye by herhaling gevestig op die implikasies en omvang van die probleem van ongelukke van allerlei aard. En dit is nodig dat hierdie probleem beklemtoon word, aangesien ons in 'n tyd leef waarin die bedreiging van ongelukke 'n baie belangrike faktor geword het by die beskouing van die publieke gesondheid en veiligheid in die algemeen.

Dat hierdie toestand van sake ontstaan het, is eintlik onvermydelik. Die vinnige ontwikkeling van die moderne nywerheidstelsel het die arbeider op 'n duisend-en-een vlakke blootgestel aan die soort van ongelukke wat vroeër nooit eers vermoed is nie. In sy arbeid het die ongeluksbedreiging dus vir die moderne mens 'n belangrike faktor geword. Die moderne verkeer, in die lug, op die aarde, in die water, en selfs in die tunnels onder die aarde, het ook ongelukke op 'n vroeër ongekenende skaal gebring. Selfs in ons huise is ons van dag tot dag aan hierdie bedreiging uitgeweer.

Wat die omvang van padongelukke betref, is die volgende syfers interessant: Volgens die jongste beskikbare opgawes het daar in 1959, 108,319 padongelukke in Suid-Afrika voorgekom, waarvan 2,842 noodlottig was en 8,534 op baie ernstige beserings uitgelopen het.

Die toestand is heelwat erger in terme van die getalle beserings op die gebied van die nywerheidslewe. Die ongevallekommissaris het bv. aangekondig dat daar in 1959 213,742 ongelukke by hom aangemeld is. Gedurende daardie jaar moes die groot bedrag van meer as R5 miljoen as kompensasië vir beseerde persone uitbetaal word. In terme van die jongste nywerheidswetgewing, wat waarskynlik gedurende hierdie sitting van die Parlement afgehandel sal word, sal die bedrag wat jaarliks aan kompensasië uitbetaal moet word na verwagting vermeerder tot R7 miljoen.

Wat ongelukke in die burgerlike lewe en tuis betref, is dit moeilik om spesifieke syfers aan te haal. Die Direkteur van die Wêreldgesondheidsorganisasie is egter van mening dat nagenoeg die helfte van alle ongelukke wat voorkom in private huise voorkom, en dat kinders meer as enige ander groep persone die slagoffers van hierdie ongelukke is. Wat die koste vir die land en vir die gemeenskap in terme van geld en in terme van swak gesondheid is, as gevolg van

hierdie groot aantal ongelukke wat in huise voorkom, is dus moeilik om te bereken. Dit is egter meer as aansienlik.

Vir die geneesheer sowel as vir elke verantwoordelike burger van die land is die belangrikste vraag in hierdie verband: Wat kan gedoen word om die bedreiging van ongelukke te verminder? Gelukkig is daar 'n paar positiewe maniere waarop die probleem benader kan word.

1. In die eerste plek moet dit besef word dat daar 'n definitiewe faktor van vatbaarheid vir ongelukke by 'n sekere persentasie van mense voorkom. 'n Groot aantal ondersoeke is al op verskillende gebiede uitgevoer om te probeer vasstel wat hierdie faktor van vatbaarheid vir ongelukke omvat. Dit is nie maklik om al die elemente op hierdie gebied bloot te lê nie. Nogtans wil dit voorkom of faktore soos swak motoriese koördinasie, visuele defekte, dranksugtigheid, en 'n hele aantal ander temperamentele faktore almal in minder of meerdere mate 'n rol speel op hierdie gebied. Dit sou dus verstandig wees om persone wat onderhewig is aan 'n besonder hoë vatbaarheid vir ongelukke sover moontlik uit te skakel uit take en prosesse wat die moontlikheid van ongelukke insluit.

2. In die tweede plek kan 'n doeltreffende organisasie wat daarop ingestel is om die toepassing van verkeersreëls te beheer, baie doen om die ongeluksyfer te verlaag. Op dieselfde manier kan die streng en doeltreffende toepassing van nywerheidsreëls 'n invloed hê op die voorkoms van ongelukke in die nywerheid.

3. Wat die algemene publiek betref, en ongelukke in die huise, behoort 'n uitgebreide stelsel van veiligheidspropaganda 'n sekere mate van invloed te hê. Ongelukke sal natuurlik nooit algeheel uitgeskakel kan word nie, maar hoe meer mense bedag is op die moontlikheid van ongelukke, hoe meer sal hulle kan doen om ongelukke te vermy.

Die tema vir die Wêreldgesondheidsdag, wat deur die Wêreldgesondheidsorganisasie georganiseer is, was vanjaar juis die probleem van ongelukke en hoe om ongelukke te voorkom. Propaganda van hierdie aard op 'n nasionale en internasionale vlak behoort sonder twyfel te help om die aandag van alle verantwoordelike mense te vestig op die bedreiging van ongelukke, en op die moontlikhede om hierdie bedreiging in die toekoms te verminder.

MENTAL HEALTH SERVICES

At the Annual Health Congress held by the Royal Society of Health last year at Torquay, England, Dr. G. E. Godber, Chief Medical Officer, Ministry of Health, outlined the changes in mental health services that had taken place in England and Wales in the past decade, and forecast a rapid development in the next ten years. The statement is of interest in South Africa, where the same problems are being faced.

Doubts arose about the wisdom of the policy of long detention of patients in the mental hospitals. In 1958, these

comprised 48% of all hospital beds in England and Wales, but were responsible for only 3.4% of the turnover in hospitals of all kinds. Can a reduction be made in the proportion of mental cases treated as inpatients, and in the length of stay in hospital? Some progress in this direction has already been made. During the 9 years 1949 - 1958, the inpatient turnover in hospitals for the mentally ill or sub-normal increased by 75%—with only a 6% increase in the number of beds. The percentage increase in turnover was more than double that achieved in the rest of the English

hospitals. The total turnover in the mental hospitals, however, still remains comparatively small; nevertheless Godber considers that the increase represents the beginning of a revolution in psychiatric practice. A steady decline is now taking place in the number of patients resident in the mental hospitals, notwithstanding the increase in admissions which continues.

Some of the factors that have contributed to this development are the new methods that have been discovered for the treatment of mental disease; but a still more important factor is the change that has taken place in the general attitude towards mental illness, and the 'emergence of psychiatry from its isolation from the rest of medicine and, indeed, from the rest of the community'.¹ It is now recognized that rigid segregation tends to increase mental disturbance. If possible, the patient should not be removed from the support of his 'family and familiar things'; and if admission to hospital is unavoidable, his contact with life outside should be maintained and he should remain an inpatient for as short a time as possible.

The influence of these two factors has shown itself also in the rapid growth of psychiatric outpatient services and the establishment of day-hospitals, of which there are now more than 60 in England and Wales, as well as social clubs and analogous institutions for mental patients.

The British national health service has made provision for more trained psychiatrists and for better training. Their numbers increased by 60% in the past ten years. The 50 young doctors who now start as senior registrars in psychiatry every year, number two-thirds more than those in general medicine or general surgery, and constitute about one-fifth of all senior registrars at that stage. It is doubtful what further improvements will be possible in this direction; the limiting factors are the number of candidates with the necessary aptitude and inclination, and the extent of the modern facilities for the treatment of patients and the training of psychiatrists.

The hospital centres, says Dr. Godber, which have made

most progress in psychiatry, have done so by providing early treatment for the acute cases by means of outpatient clinics, day-hospitals, and short-stay inpatient treatment. He quotes the example of Oldham, where a population of about 25,000 is being effectively served by a unit of 220 beds plus outpatient department, day-hospital, and 32 psychogeriatric beds; and it is found necessary to send only a few patients to the long-stay mental hospital. At Birmingham it has been estimated that, with modern methods, a population of one million may eventually need 300-400 short-stay beds and 1,000 beds for continued treatment.

A warning is issued against breaking the psychiatric staff, medical and nursing, into a more favoured section looking after the acute and short-stay hospital, and other modern developments; and a section responsible for the more tedious work of the longer-stay units. To maintain efficient and contented staffs, the two groups should be unified.

To achieve full efficiency it is stressed that psychiatric hospital services should be linked with general hospital services, including those for the chronic sick and the aged; and also with the local authority health services.

Apart from provision for the mentally subnormal, it is concluded that in England there is no need for a greater total number of psychiatric beds—rather less. More psychiatric services are required, and the new buildings that are erected to keep pace with current needs must, of course, be designed and planned in accordance with modern psychiatric knowledge. The danger is recognized that overcrowding in the existing mental hospitals might lead to their extension on the old pattern of resident treatment 'rather than the adoption of measures that would help to modernize the psychiatric service and reduce overcrowding very much faster'.

'No hospital building programme could transform quickly the products of the last 150 years into the buildings needed now.'

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PYOGENIC PERICARDITIS

A STUDY OF FIFTEEN CASES AT THE RED CROSS WAR MEMORIAL CHILDREN'S HOSPITAL, CAPE TOWN

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Most patients admitted to the Red Cross War Memorial Children's Hospital are non-Europeans. Their admissions are usually because of illness caused by an infection, and the high incidence of this may be due to the fact that a large proportion of these children are malnourished. The area drained by the hospital is a wide one with a large multi-racial population. Non-European children are, on the whole, under-nourished, and the unsatisfactory conditions under which they live are very conducive to the development of kwashiorkor, pneumonia, osteitis, etc. Shandling¹ was able to collect 300 cases of osteitis in Cape Town over a 7-year period, while Bowie,² Truswell,³ and Robertson *et al.*⁴ all report a high incidence of gastro-enteritis. Pyogenic meningitis and staphylococcal pneumonia are also very common.

It is therefore not surprising that, in the short period since

the hospital opened (in the middle of 1956), pyogenic pericarditis has been seen relatively often. Other forms of pericarditis have been excluded from this study. Thus, pericarditis associated with rheumatism, tuberculosis, uraemia, and the collagen diseases is not dealt with here.

CASE MATERIAL

For the 4-year period, September 1956-September 1960, the notes of all patients with the diagnosis of pyogenic pericarditis have been studied. Fifteen proved cases of pyogenic pericarditis have been found. Of these, 1 was a European child, 12 were Coloured and 2 were Bantu.

Their ages ranged from 3 weeks to 12 years (no child over the age of 12 is admitted to the hospital). The analysis of age, sex and race is given in Tables I and II. It will be seen that

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TABLE I. SUMMARY OF CASES—GROUP 1 (RECOGNIZED CLINICALLY)

Case no.	Age (years)	Sex	Race	Length of history (days)	Diagnosis on admission	Blood culture	Pericardial tap (totals in ml.)	Organism from pericardium	Result	Days in hospital	Drugs used
1	8	M	B	8	Septicaemia	<i>Staph. aureus</i>	290	<i>Staph. aureus</i>	Recovered	48	P, St, Dig.
2	8½	M	C	4	Pneumonia	Nil grown	150	<i>Diplococcus pneumoniae</i>	Died	1	P, S, Dig.
3	9	M	C	5	Osteitis	Nil grown	1,090	<i>Staph. aureus</i>	Recovered	5 months	P, St, E, N, CF
4	5	M	C	3	Septicaemia	<i>Staph. aureus</i>	Not done	—	Died	1	P, A, CF
5	1½	M	E	5	Osteitis	<i>Staph. aureus</i> (penicillin resistant)	45	<i>Staph. aureus</i>	Died	18	P, S, St, CF, E, Dig.
6	4	F	C	4	Osteitis	<i>Staph. aureus</i>	Nil	<i>Staph. aureus</i> (postmortem)	Died	11	P, St, CF, T, Dig.
7	2	M	C	14	Empyema	Not done	480	Gram + cocci	Recovered	42	E, N, Dig.

Key: M = Male, F = Female, E = European, C = Coloured, B = Bantu, P = Penicillin, S = Sulphadiazine, T = 'Terramycin', St = Streptomycin, A = 'Achromycin',

N = Novobiocin, CF = Chloramphenicol, E = Erythromycin, and Dig. = Digitalis.

TABLE II. SUMMARY OF CASES—GROUP 2 (FOUND AT AUTOPSY)

Case no.	Age	Sex	Race	Length of history (days)	Diagnosis on admission	Blood culture	Organisms cultured at autopsy	Result	Days in hospital	Drugs used
8	5 wks.	F	C	1	Prematurity	Nil grown	<i>Staph. aureus</i>	Died	1	T
9	2 wks.	F	C	4	Bronchopneumonia	<i>Staph. aureus</i>	<i>Staph. aureus</i>	Died	1	P, S
10	3 wks.	M	C	3	Empyema	Not done	<i>Staph. aureus</i>	Died	1	CF, E
11	4 mths.	M	C	3	Empyema	Nil grown	Nil found	Died	1	P, S
12	1½ yrs.	F	C	7	Jaundice	Nil grown	Paracolon organism	Died	2	T
13	9 mths.	M	B	4	Kwashiorkor	Not done	Nil obtained	Died	2	CF
14	12 yrs.	M	C	14	Osteitis	Nil grown	<i>Staph. aureus</i>	Died	2 mths.	CF, N, E, Dig.
15	1 mth.	F	C	4	Gastro-enteritis	Not done	<i>Staph. aureus</i>	Died	2	CF, neomycin

Key: See Table I.

males were twice as common as females, and the overall mortality was 12, i.e. 80%.

On analysing the case material it was found convenient to distinguish between 2 groups: (1) in which the diagnosis was made clinically, and (2) where it was made at postmortem examination.

Group 1

A clinical diagnosis of pericarditis was made in 7 patients. Four died and the diagnosis in 3 of these was confirmed at autopsy. The fourth patient (case 5) did not undergo an autopsy. In these 7 patients, the diagnosis on admission was: septicaemia, 2; osteitis, 3; and empyema, 2. The average length of history was 5 days, but 1 child had a history of 2 weeks' illness.

Six of these patients had signs of congestive cardiac failure. Pulsus paradoxus, diminished cardiac pulsation, and dullness beyond the apex beat were constant findings. Only once (case 4) was a pericardial friction rub noted. X-rays of the chest showed gross generalized cardiac enlargement in all 7 cases. Four patients had electrocardiograms (ECGs) done. Of these, only 1 (case 7) had typical changes from the start. Case 1 developed diffuse T-wave inversion with slight ST depressions after 2 weeks in hospital. The other two ECGs were within normal limits.

Where the diagnosis was suspected on clinical grounds, pericardial aspiration was performed. This was done in 6 of

the patients, and in only 1 was the procedure unsuccessful. The approach used was from below, the aspiration needle being inserted between the left lower costal margin and the xyphoid process, the pericardial sac being entered through the dome of the diaphragm. Varying quantities of pus were aspirated, ranging from a total of 45 ml. to 1,090 ml. in a patient who required 10 aspirations. In 3 instances air was put back into the pericardium, usually about half the volume of the fluid taken off. X-rays taken immediately after the air instillation showed the size of the pericardial sac. No mishaps occurred with this procedure and it was found to be very helpful in ascertaining the amount of pus still present.

In 6 of the 7 patients blood cultures were performed. Four of these grew coagulase-positive *Staphylococcus aureus*, i.e. 66% had a proved bacteraemia. In 3 of the 5 patients who had successful pericardial aspirations, *Staphylococcus aureus* was grown from the pericardial aspirate, and in 1 patient *Diplococcus pneumoniae* was grown. The fifth gave no growth, but numerous Gram-positive cocci were seen on a stained smear. In 2 of the 3 patients with osteitis, coagulase-positive *Staphylococcus aureus* was grown from the bone lesions.

The drug sensitivities of the organisms isolated were tested in all instances to penicillin, streptomycin, chloramphenicol, erythromycin and 'terramycin'. With 1 exception they were sensitive to all these, the exception being a staphylococcus resistant to penicillin (case 5). In this child the staphylococcus

grown from the blood culture was resistant, but that from the pericardium was sensitive; a curious anomaly.

Group 2

The diagnosis of pericarditis was made at autopsy in 8 patients in whom it was unsuspected before death. Five of these patients were under 6 months of age, 2 were between the ages of 6 and 18 months, and 1 was 12 years old. Of the 7 patients under the age of 18 months, 1 was a premature baby, 1 had kwashiorkor, 1 gastro-enteritis, 1 jaundice of unknown origin and 3 were thought to have bronchopneumonia. All these infants were extremely ill and died within 48 hours of admission. The 12-year-old boy was treated for 2 months for acute bacterial endocarditis. He died suddenly of acute cardiac failure. At postmortem examination he was found to have had acute bacterial endocarditis, a cardiac aneurysm, diffuse pyogenic pericarditis, and multiple foci of osteitis.

At postmortem examination, in addition to pyogenic pericarditis, 6 patients had pneumonia and empyema; the patient with jaundice had a suppurative pyelonephritis, and the patient with kwashiorkor had a fatty liver and dilated heart.

Five of this group had blood cultures performed; of these only 1 was positive (*Staphylococcus aureus*). In 6 others, organisms were recovered at autopsy from either the pericardium or some other site, e.g. osteitis or empyema. In 5 cases the organism was a coagulase-positive *Staphylococcus aureus* and in 1 a paracolon strain. In 2 cases the pus and blood cultures were sterile.

TREATMENT

Group 1

In this group all except one of the patients were thought to be in cardiac failure and were digitalized.

Penicillin and sulphadiazine only were used in one fatal case. Penicillin and streptomycin were given to another child who recovered. Usually, however, the initial treatment was penicillin and sulphadiazine or streptomycin until the result of one or other culture was known, when treatment with the appropriate antibiotics was started. If the patient did not respond within 48 hours, the antibiotics were changed. A combination of two or more antibiotics was the rule, but no fixed antibiotic combination was used. Chloromycetin and erythromycin were employed in 2 cases, chloromycetin and 'albamycin' in 2 others. Two patients each had 5 different antibiotics. No correlation could be found between the drugs used and the outcome of the illness.

Pericardial aspiration was performed on 6 of the 7 patients. The seventh patient had a friction rub, but no aspiration was done. The diagnosis was confirmed at autopsy. In those aspirated, all the obtainable pus was removed and the procedure was repeated daily until aspiration failed to produce any further pus, or the patient died. In no case was open drainage performed. In 1 patient 10 aspirations were carried out and the patient recovered completely. In some instances, penicillin was injected into the pericardial sac, but this was not a routine measure. In 1 patient (case 7) desoxyribonuclease (deanase), 1 million units dissolved in 2 ml. of normal saline, was injected into the pericardial sac. Empyema thoracis was treated by repeated needle aspirations. Osteitis was dealt with by drilling, drainage, and immobilization in plaster.

Group 2

All these patients received anti-infective therapy as shown in Table II. No local therapy was given since pericarditis was not suspected. No digitalis was used.

Resumé and Outcome

Pyogenic pericarditis in children, as seen in this series, was divisible into 2 groups, those clinically recognizable and thus treatable, and those whose pericarditis was part of a generalized septicaemia and was not diagnosed during life. The detectable ones were usually more than 18 months of age, the others younger. In 66.6% of cases the organism was *Staphylococcus aureus*. Paracolon organisms and pneumococci were the only other ones isolated. There were only 3 survivors, but their recovery was complete, and follow-up has not revealed any sequelae or constriction. One patient has been followed-up for 4 years and there is no evidence of chronic pericardial disease.

DISCUSSION

Purulent pericarditis is not common. Haran⁸ reported on 27 cases of pyogenic pericarditis collected over 18 years; Schrire,⁹ in 6 years, collected 5 cases under the age of 10. In the 4 years under review, 10,900 patients were admitted to the Red Cross War Memorial Children's Hospital.¹⁰ Pyogenic pericarditis (15 cases in this series) thus accounts for only 0.14% of the total. The condition occurred in both medical and surgical patients and may well have been more frequent, since permission for autopsy is often refused. The nature of the infection, either as an extension of a presenting intra-thoracic disease or as part of a septicaemia, makes close collaboration between physician and surgeon imperative. In no case was the diagnosis indicated by the history, and the fact that more than half the diagnoses were made after death is not flattering.

Haran,⁸ in a review of 27 patients, states that the diagnosis is not easy; this is in keeping with our own findings. On admission, all but one of the children in group 1 were thought to be in congestive cardiac failure. They showed the usual signs of this condition and were treated accordingly. Many of our patients are in a similar state on admission. The primary difficulty lies in the detection of cases. In contrast to what is commonly found in rheumatic and tuberculous pericarditis,⁶ praecordial pain, pericardial friction, and distant or muffled heart sounds are either not present or are readily missed in very young children. A friction rub was heard in only 1 patient out of 7 in group 1. Cardiomegaly and pulsus paradoxus were noted in every case, but in children with rapid respiration pulsus paradoxus is often a difficult sign to elicit and, when present, is not diagnostic.

In all the cases X-rayed, the picture is suggestive, but not reliable, and the diagnosis has to be tested by a pericardial tap, a procedure which is not lightly embarked upon, especially in a critically ill infant. In one patient in this series no pus was obtained, but the diagnosis was established at autopsy.

The infecting organisms in 10 — probably 11 — of the present 15 cases was a staphylococcus; in one it was a paracolon organism; and in another *D. pneumoniae*. Many blood cultures were sterile and it was not unusual to fail to find the causative organism even in the pericardial pus. Consequently, rational treatment cannot always be decided with certainty by assiduous use of bacteriology, and the choice of a therapeutic agent must depend, in the first instance, on probability.

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In approximately 80% of the entire present series a staphylococcus appeared to be the infective agent, and the sensitivity tests showed that it was almost invariably sensitive to any one of the 6 drugs used. This was a surprise in respect of penicillin but is in keeping with Shandling's¹ observation that more than 81% of the staphylococci recovered from osteitis in the Cape Town area were sensitive to all the antibiotics in common use.

The mortality rate did not correlate with the sensitivity of the organism. Two or even 3 antibiotics together failed to save the children's lives. Frequent pericardial aspirations often did not accomplish much. Desoxyribonuclease, on the sole occasion it was used in the pericardium, seemed to produce liquefaction of the pus and a much easier aspiration; it should probably be incorporated in routine treatment. This may avoid the necessity for more heroic measures such as surgical drainage. Before the introduction of antibiotics, purulent pericarditis was invariably fatal, as can be seen in the cases reported by Torrey *et al.*⁹ who used only sulphonamides. McGuire *et al.*,¹¹ Aird,⁷ and Cant *et al.*⁸ all recommend open drainage in addition to antibiotics. Nadas and Levy¹² state that a small thoracotomy incision is preferable to all other measures for draining the pericardium. Open drainage should be used in those cases which fail to respond to the other methods, but the operation itself is a very serious one for such extremely ill children.

It is obvious that reliance on massive antibiotic therapy is not adequate in pyogenic pericarditis. Whether intra-pericardial instillation of antibiotics would improve matters or not remains to be seen. The other, possibly primary, foci of infection must be attended to on the lines currently acceptable, as they were in this series. The pericarditis cannot be a primary lesion and the treatment must be holistic.

Autopsy reports showed a multiplicity of lesions, no one of which was indictable as the final cause of death.

PRIMÊRE RUPTUUR VAN 'N VEERTIEN-WEKE-SWANGER UTERUS AS GEVOLG VAN SUBAKUTE ONSTEEKING

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Die probleem van uterusruptuur is in die literatuur beslis nie links laat lê nie. Sedert Bandl¹ se verhandeling oor die onderwerp in 1875, kon Beacham en Beacham² in 1951 reeds 727 geskrifte oor die onderwerp bestudeer.

Naas die mees algemene en welbeskrewende etiologiese faktore in ruptuur, nl. obstruktiwiese kraam, trauma, litteken-ruptuur na chirurgiese ingrepe op die uterus, oksitotiese middels, multipariteit, obesiteit, kongenitale uterus-misvormings, hoëke implanting van die vrug, stortkraam, chorioniese infiltrasie van die miometrium, en vorige perforasie van die uterus of kuret-besering, bly daar egter 'n groep gevalle oor waar geen van die gewone oorsake gevind word nie en wat gewy word aan 'Baustörung des Gewebes',³ aan 'n inherente patologiese proses in die miometrium wat nie mikroskopies sigbaar mag wees nie,⁴ of aan wanvoeding.⁵

In spite of the high overall mortality of 80%, those that recover apparently do so completely. Schrire⁶ and Haran,⁵ in their series, saw no patient develop chronic constrictive pericarditis. The 3 survivors in this series appear to be doing well. This is both encouraging and gratifying, and suggests that more strenuous efforts should be continued to overcome this depressingly dangerous complication of pyogenic disease.

SUMMARY

1. A series of 15 cases of pyogenic pericarditis occurring over a 4-year period have been studied. Seven were recognized clinically and treated.

2. The organism involved in the majority of cases was a *Staphylococcus aureus* sensitive to all antibiotics.

3. The overall mortality rate was 80%, but in those recognized clinically, it was 43%. Where recovery occurred, this was complete.

4. Since massive antibiotic therapy and aspiration, with digitalization and attention to the primary sites of infection, were inadequate, other measures are briefly considered.

I thank Prof. F. J. Ford, Head of the Department of Child Health, University of Cape Town, for his help in the preparation of this paper; Dr. G. Sutin of the Cardiac Clinic for his encouragement; Dr. D. McKenzie for his help in obtaining postmortem results; and Dr. J. F. W. Mostert, Medical Superintendent of the Red Cross War Memorial Children's Hospital, for permission to publish the paper and for access to the hospital files and statistics.

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BESKRYWING VAN GEVAL

D.M., 'n 23-jarige Bantoevrou, gravida 2, para 1, is op 8 Maart 1958 toegelaat tot die ginekologiese afdeling van die Algemene Hospitaal, Pretoria, met die volgende klagtes:

Haar laaste normale menstruasie was in Desember 1957, met daarna 3 maande amenorree tot een dag voor toelating. Die dag voor toelating het sy sonder klaarblyklike oorsaak of waarskuwing 'n akute onderbuikpyn ontwikkel, gepaard met 'n bloederige vaginale afskeiding. Die pyn het gesprei na die skouers en sy moes gaan lê. Haar toestand het vererger en

pollakisurie met disurie en aanhoudende onderbuikpyn het baie sterk op die voorgrond getree.

Hartkloppings, duiseligheid as sy orent kom, en braking het later voorgekom.

Geskiedenis

Die *menstruasie* wat begin het op 15-jarige ouderdom was tot Desember 1957 altyd gereeld, 5/28 dae, met geen verskynsels van pyn of oormatige bloedverlies nie.

Afskeiding. 'n Wit vaginale afskeiding was baie jare lank teenwoordig en veral erg sedert die vorige bevalling. Geen intermenstruele bloeding is ooit bespeur nie.

Dispareunie. Geslagsgemeenskap gedurende die laaste 3 maande was pynlik.

Vorige swangerskap. Daar was een vorige swangerskap in 1955 wat normaal verloop het tot voltyd. Op 12 Oktober 1955 het baring spontaan begin met kontraksies en slymerige bloedafskieding. Kraam wou egter nie vorder nie, en 'n geneesheer is na 18 uur op 13 Oktober ontbied. Hy het onder algemene narkose 'n stuit-uittrekking verrig. Meer spesifieke gegewens oor die verlossing kon nie verkry word nie.

Tydens die puerperium het die pasiënt 4 weke in die bed gebly, hoewel sy nie baie siek gevoel het nie. Vier maande na die bevalling was sy egter baie siek en was 2 maande bedlêend met erge buikpyn en 'n slegruikende etterige vaginale afskeiding waarvoor sy tuis behandel is met tablette en medisyne (blykbaar sulfonamied).

Ander siektes en operasies. Daar was geen geskiedenis van enige operasie of ander siekte nie. Na haar siekte in Februarie en Maart 1956 was sy volkome gesond.

Ondersoek

Die pasiënt was 'n goedgeboude Bantoe van normale vroulike habitus, sy was 5 voet 4 duim lank. Daar was tekens van skok en sy het blykbaar pyn verduur, sodat sy doodstil in een posisie bly lê het. Die polsspoed was 108 slae per minuut, die bloeddruk 110/70 mm.Hg, en die rooisel-besinking 10 mm. in die eerste uur. Die temperatuur was 99.6°F. 'n Katetermonster urine het geen afwyking getoon nie.

Die kop en nek, hart en longe en ledemate het klinies geen afwykinge gehad nie. Die borste was goed ontwikkel en 'n waterige afskeiding kon uit die tepels gedruk word.

Die buik was effe opgeset met geen beweging met asemhaling nie. Betasting het baie pyn veroorsaak en die loslatingstekens was positief. Spierspanning was teenwoordig en veral die onderbuik was plankhard. Met beklopping was die hele onderbuik dof terwyl slegs enkele dermklanke gehoor kon word.

Ginekologiese ondersoek het 'n normale gesonde vulva en introitus getoon. Uit die vagina het 'n geel bloederige afskeiding gekom. Die vagina was diep en met spekulum-ondersoek het die laterale wande na binne gepeul, sodat die serviks, wat betreklik hoog geplaas was, moeilik sigbaar was. Die serviks het 'n klein erosie getoon, maar geen skeure nie; die kleur was blou-pers, met 'n geringe bloederige afskeiding uit die eksterne os. Die serviks was sag en beweging daarvan was vry, maar uiters pynlik. Die uterus was nie tasbaar nie en die hele teen onderbuik het 'n vae weerstand gebied.

Punksie van die sak van Douglas het heelwat bloederige sereuse vog opgelewer sonder enige stolsels.

Diagnose voor die operasie. Die diagnose voor die operasie was ruptuur van 'n interstisiële swangerskap, en met hierdie diagnose is besluit om laparotomie uit te voer.

Bevindinge by Operasie

In die buikhoute was daar heelwat bloederige sereuse vog. Die uterus was vergroot soos by 12-weke swangerskap met 'n normale fundus en corpus en normale buise en eierstokke. Albei breekbande was met bloed uitgeset en die peritoneale omslag tussen die blaas en uterus het blou uitgegely. In hierdie ekstraperitoneale hematoom kon fetale dele gevoel word en by insnyding is die fetus met die plasenta en vliese tussen die blaas en uterus verwyder waar dit los gelê het.

Die uterus het 'n sirkelvormige skeur deur die isthmus gehad en net posterior was die liggaam en serviks nog met 'n dun bandjie miometrium verbind. Deur die serviks vanuit die vagina op te druk, kon dit goed lokaliseer word, en met sondering van bo af was die servikale kanaal normaal en gesluit. Verdere ondersoek na tekens van trauma was negatief, beide vagina en portio was ongeskonde. Enige traumatiese oorsaak van die ruptuur kon dus uitgeskakel word.

Weens die uitgebreide hematoom in en om die weefsels, was hegting van die ruptuur nie moontlik nie en die uterus is subtotaal verwyder met behoud van die eierstokke en serviks.

Met behulp van bloedoortapping, antibiotika, en later resorpsie-terapie met ultra-kortgolf bestraling, het die bekkenontsteking opgeklare, die hematoom-infiltraat het verdwyn, en na 6 weke by kontrole-ondersoek was die pasiënt objektief en subjektief volkome herstel.

Operasiemonster (Afbs. 1 en 2)

Die fetus het geen ontwikkelingsanomalie getoon nie. Die kruinhak-lengte was 12 cm., sodat die berekende ouderdom van 14 weke bevestig is. Die skeur in die uterus het vars voorgekom, die plasentabed was posterior geleë, en aan die uterus kon verder geen abnormaliteite gesien word nie.



Afb. 1. Die monster toon die geruptuurde uterus en fetus met plasenta.



Afb. 2. Die inferior aspek van die uterus na anterior kliewing. Die plasentabed is in die fundus en die geskeurde oppervlakte lê voor.

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Mikroskopiese Ondersoek

Kleuring vir bindweefsel (van Gieson) kon geen ou littekenweefsel of bindweefsel-reaksie van die miometrium aantoon nie. Geen tekens van endometriële of chorioniese indringing in die miometrium is gevind nie.

Die patoloog (dr. W. J. Pepler) het verder soos volg gerapporteer:

1. *Uterus*. Die endometrium is bedek met fibrien en akute inflammatoriese eksudaat. Die klierie van die endometrium is van die plat swangerskapstipe en die stroma toon alleen deels 'n desiduele reaksie. Andersins is daar uitgesproke kapillêre angiëktasie en limfangiëktasie met gepaardgaande areas van bloeding in die stroma. Die arterioles toon uitgesproke endarteritis obliterans. Die mees uitstaande kenmerk is egter 'n uitgesproke infiltrasie met akute inflammatoriese selle en ook tot 'n mindere mate limfosiete en plasmassel.

Die beeld is dus dié van 'n subakute endometritis. In die miometrium is daar 'n area van ruptuur met omringende interstisiële bloeding, dilatasie en stuwung van venae. Weereens is die mees uitgesproke verandering hier in die vorm van 'n subakute inflammatoriese sel-infiltraat in die interstisiële weefsel. Daar is ook endarteritiese veranderinge in die bloedvate van 'n tipe wat eerder verklaar sou kon word op die basis van taamlik langdurige ontsteking. Die spierselle self toon vroeë hialiene, eosinofiele, nekrotiese veranderinge in die gebied van die ontstekingshaarde en is waarskynlik 'n sekondêre verskynsel. In die subserosale gebied is die ontstekingsreaksie meer akute.

2. *Plasenta*. 'n Area van taamlike vroeë infarksie is aanwesig. Diagnose. Primêre subakute endo- en miometritis met sekondêre uterusruptuur en plasentale infarksie.

BESPREKING

Bakteriologiese studies is nie in dié geval uitgevoer nie. Met die duidelike vorige geskiedenis van bekkenontsteking lyk 'n opflukking tydens die swangerskapshiperemie egter baie waarskynlik. As gevolg van die endarteritis obliterans met 'n avaskulêre nekrose, was die miometrium so ver swak dat dit geruptuur het met die ritmiese kontraksies van die uterus.

Hierdie geval val in die klein groep van primêre of spontane uterusrupture waarvoor in meeste reekse geen

spesifieke oorsaak aangegee word nie.^{2,3,6-9} Of infeksie meer algemeen as oorsaak voorkom, kan nie gekonstateer word nie. Veral by die Bantoe, met 'n baie hoë insidensie van bekkeninfeksie, mag dit beslis die moeite loon om verder hierop in te gaan.

SUMMARY

A case of spontaneous rupture of a 14-week pregnant uterus is reported. The patient, a 23-year-old Bantu woman had had one previous pregnancy which was delivered at term by breech extraction. After delivery she developed a severe pelvic infection. She recovered from this and fell pregnant again.

A spontaneous, annular rupture of the uterus through the isthmic portion occurred at the fourteenth week of pregnancy. The corpus was almost completely detached from the cervix, the foetus and placenta lying in a haematoma between the bladder and the uterus. Sub-total hysterectomy was carried out.

The condition of subacute endometritis and myometritis is regarded as the primary cause of the rupture.

My dank aan Prof. F. G. Geldenhuys, Hoof van die Departement Obstetrie en Ginekologie, vir sy hulp en kritiek, en aan Dr. P. N. Swanepoel, Superintendent van die Algemene Hospitaal, Pretoria, vir verlof om die geval te publiseer. Dr. W. J. Pepler van die Departement Patologiese Anatomie word hartlik bedank vir die histologiese ondersoeke.

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INH PROPHYLAXIS AND TREATMENT IN BOVINES

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MATERIAL AND METHODS

The first step was to re-test the whole herd and give each animal a metal ear-tag for easy identification — the test was carried out on 19-21 March 1957, using both bovine and avian tuberculin, and the overall results were as follows: herd total, 115; positive reactors, 69; suspicious reactors, 16; and negative, 30.

When the incidence of reactors is as high as these results show, suspicious reactions may be considered as positives. This means that the test revealed that 74% of the herd were reactors to the single intradermal test. To avoid confusing the issue, the tuberculin test was interpreted purely on skinfold increase at the site of injection after 72 hours, using the following limits: skinfold increase under 2 mm., negative; skinfold increase 2-4.9 mm., suspicious; and skinfold increase 5 mm. and more, positive.

The project described in this paper is being carried out on a dairy herd. The herd is kept as a source of fresh milk for the employees of a company and has for many years been maintained as a closed unit, except for the occasional purchase of a new bull. The herd, which now numbers 130 head, including calves, is run on about 10 acres of land. The bulk feed is grown in the neighbourhood and the animals are fed in the milking shed or in the paddocks. Thus they are in very close contact with one another. Water for the cattle is provided in concrete drinking troughs.

During February 1957 the owners applied to have the herd tuberculin-tested and were alarmed when, on the tests being read, it was found that about 60% of the animals gave a positive or suspicious reaction.

It was decided to use iso-nicotinic acid hydrazide (INH) on the herd to determine its value, if any, as a chemotherapeutic and prophylactic agent.

All positive and suspicious reactors, as well as the negative animals, were to be given a daily dose of INH for 6 months, after which the herd would be re-tested and the position reviewed. All calves born after the start of the test were to be given INH within 7 days of birth.

The dose of INH used was 45 gr. for a full-grown Friesland, graded down to about 15 gr. for a calf. When considered in terms of average human dosage, the dose used on the smaller animals is high while that given to the adult animals is relatively low.

The drug was supplied in crystalline form, which milking cows took mixed in their concentrate ration. Those animals not receiving concentrates were passed through a crush-pen and individually dosed, it being found most convenient to wrap up each dose in a small piece of paper and throw the pellet into the back of the mouth.

The treatment of the herd started on 5 May 1957, and on 18 August 1959 all adult animals were taken off treatment, but all calves and heifers are remaining on daily INH treatment until about the age of 2½ years. During this experiment no changes were made in the general management of the animals, neither were any special hygienic or isolation measures used.

RESULTS

Single intradermal tuberculin tests were carried out on the following dates with the overall results shown in Table I: 18-21 March 1957—bovine and avian tuberculins used, 11-14 November 1957—bovine and avian tuberculins used, 18-21 February 1958—human tuberculin used, 26-29 May 1958—human and bovine tuberculins used, 6-9 December 1958—bovine tuberculin used, and 7-10 July 1959—bovine tuberculin used.

Attempts were made at the beginning of the project to discover open tuberculosis cases, using milk and sputum-cup samples, but unfortunately all efforts proved fruitless. Detailed postmortem examinations were carried out on animals that died or were destroyed after the trial began. Full laboratory and biological tests were carried out on all samples collected at these autopsies.

The salient points to arise from the trial to date are as follows:

1. The Possibility of Raising Calves free of Tuberculosis in Herds where the Disease is Rife

Since treatment of the herd began, 70 calves have been born and these have always been negative to the tuberculin tests carried out at various times, with the exception that,

at the test done on 7-10 July 1959, 8 calves showed suspicious reactions, and 3 showed positive reactions to bovine tuberculin. At each subsequent re-test of these calves, all reactions were found to have decreased. Two of the calves that showed the greatest reactions were slaughtered, but autopsy revealed no tuberculous lesions, although both showed cysticercosis. At first it was thought that this infection of 'measles' was sensitizing the calves to tuberculin. However, it was noticed that the calves that had sawdust bedding in their pens were the only ones to show tuberculin sensitization, and as soon as this bedding was replaced by 'duckboards', no further new calves showed an allergy to tuberculin. Following this up, it was found that the sawdust bedding had been obtained from a sawmill some miles away. At this mill the sawdust was simply thrown into heaps in the open air to which numerous children, fowls and wild birds had free access.

Samples were selected from the original sawdust heap where bedding was obtained for the calves. These specimens, collected in sterile receptacles, were aseptically handled and, before seeding on media, were treated in the laboratory for ¼-hour, 1-hour and 2-hour periods, with 4% sodium hydroxide. A number of acid-fast species were isolated, the majority falling into the fast-growing *M. fortuitum* group; one resembled an avian type. We wish to draw special attention to this avian type.

White guinea-pigs were selected and injected intramuscularly with cultures obtained from single colonies of both groups. Subsequently, the infected calves were subjected to the intradermal tuberculin test, from 18 to 25 days after injection. Mammalian tuberculin was injected into the skin behind the right ear and avian tuberculin behind the left ear. Control guinea-pigs from the breeding section were similarly skin tested; each injection produced a small whitish bleb. The results were read 24-48 hours after the test.

In the pigs injected with the avian-type bacillus there was a striking positive skin reaction to the avian tuberculin; there were comparatively poor but definite reactions to mammalian tuberculin. All the pigs injected with the *fortuitum* group and all the controls remained completely negative.

The guinea-pig reactors which underwent postmortem examination showed an abscess at the point of injection, enlarged or slightly caseated inguinal glands, swollen iliac glands and moderately enlarged spleens with, in one case only, raised tubercles on the surface.

TABLE I. TUBERCULIN SKINFOLD MEASUREMENTS IN A DAIRY HERD

Tuberculin test	Tuberculin used	Date of test reading	Total herd strength	Positive reactions	Suspicious reactions	Negative reactions	% negative in herd	Total skinfold increase in mm.	Average skinfold increase in mm.
1st	Bovine 99	21.3.57	115	69	16	30	26.1	869.9	7.56
2nd	Bovine 5	14.11.57	126	69	26	31	24.6	862.2	6.84
3rd	Human 8	21.2.58	129	41	28	60	46.5	430.9	3.34
4th	Human 10	29.5.58	125	55	30	40	32.0	522.8	4.18
5th	Bovine 7	9.12.58	125	17	52	56	44.8	310.4	2.48
6th	Bovine 131	10.7.59	121	33	49	39	32.2	403.6	3.33
	Bovine 134		130	35	48	47	36.2	388.6	2.99

The mycobacterium recovered so far from the lesions of guinea-pigs examined at autopsy closely resembles the avian organism. It is being studied for further classification.

With regard to this organism, a point of exceptional interest was the strong isoniazophilic tendency apparent in a preliminary sensitivity test made on 5-50 μ of isoniazid incorporated per ml. of media, which produced growth several days earlier than on the non-INH control tubes. This might be an explanation in modern chemotherapy for the emergence of previously unknown mycobacteria in human pathology. In veterinary science, these organisms might be an additional cause of the inexplicable occasional reactions in areas where bovine tuberculosis had been eradicated.

This, together with the fact that calf sensitization to tuberculin ceased as soon as the sawdust bedding was done away with, suggests that these avian-like organisms in the bedding were the cause of the sensitization, and that the INH prophylaxis was still effective in keeping the calves free of bovine tuberculosis. It is also interesting to note that in June 1960, 7 calves that had shown sensitization to bovine tuberculin previously were re-tested using both bovine and avian tuberculins; this showed that, while skin reactions to the bovine tuberculin had decreased somewhat, the reactions to avian tuberculin were some 4 times larger.

2. The Clinical Effect of the Drug

Use of the drug stopped coughing and led to improved bodily condition and weight of the animals. All animals slaughtered for postmortem examination were in really excellent condition. Overall milk production increased very noticeably.

3. The Apparent Cure of Bovine Tuberculosis using Isoniazid

Of the 69 animals that gave positive reactions to the tuberculin test on 21 March 1957, before the treatment with INH began, 25 have either died or been destroyed for autopsy purposes to date, and of these 23 have undergone postmortem examination with the following results:

Three were found to have tuberculosis. Of these 1 had been treated for only 28 days. The organisms isolated from the other 2 were found to be biologically attenuated, although typically of bovine type. In the remainder (20) no tuberculosis could be found macroscopically, nor could

the organisms be grown from any material that appeared suspicious. Subsequently, 9 further postmortem examinations were done. In some of these, although smears from lesions showed acid-fast bacilli, cultures could not be grown, and in 2 cases where cultures were obtained these organisms were found non-pathogenic for guinea-pigs.

DISCUSSION

When all cattle positive to the tuberculin test are merely removed from a grossly infected herd, such as the one studied in this trial, it is well known that the disease smoulders on in the herd even when the strictest hygienic precautions are taken. However, if the remaining negative animals can be protected by the use of INH much will have been achieved. Some may pick up enough infection to turn a negative into a positive reaction in the early stages, but these infections do not appear to proceed beyond this initial allergy-producing stage.

Infection with avian bacilli, however, results in calves becoming sensitive to tuberculin, especially avian tuberculin, without any macroscopic signs of disease, and this may be an important factor in confusing control of tuberculosis in bovines.

The great question, of course, is how long INH prophylaxis has to be kept up. It is not an easy matter to determine. The purpose of this paper is, however, to show how dramatically a highly infected herd can be improved in condition and how the spread of the disease can be checked by using isoniazid as a curative and prophylactic agent.

Further trials are necessary to determine: (1) optimum dosage of INH, (2) length of treatment necessary, and (3) what happens to a previously tuberculous animal when INH therapy is discontinued.

SUMMARY

A highly infected tuberculous herd of dairy cows, heifers and calves was submitted to isoniazid (INH) therapy over a period of 2½ years. This therapy acted both curatively and prophylactically. The value of the remedy in building up a clean herd is stressed.

Avian infection can, however, bedevil the whole picture.

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HEALTH PROMOTION IN INDUSTRY*

M. G. WOOLF, President, Cape Midland Branch (M.A.S.A.), 1960

With each passing year more doctors are entering the factories to practise there—some full-time, others paying visits at regular but varying intervals. Their functions in industry have advanced greatly from the early days when the doctor was expected to confine himself to the treatment of occupational injuries and diseases and to render emergency treatment for illness, or to deal merely with its minor manifestations.



Dr. Woolf

having to secure a livelihood and establish themselves in a complex social and industrial scene.

Life in the more primitive environments whence they came, though simpler, was often more satisfying. It had a cohesion that is absent in the highly evolved urbanized society they have entered. Formerly they had a full understanding of, and participated in the various economic and social activities of their groups, thus enhancing their sense of social acceptance and security. In industrialized societies life is broken up into a large number of fragments—understanding of the whole and the individual's place in it are far more difficult to achieve.

Passing through the factory gates to their various jobs are industrially mature immigrants from Europe (the flow has slowed of recent times), Africans from the Reserves, Europeans and Coloured workers from the towns and country, and Indians and Malays—all posing problems of housing, transport, diet, work adjustment, and recreation and health. These problems cannot be dissociated one from the other. In the solution of many of these problems the doctor in industry has a positive contribution to make.

HEALTH EDUCATION WITHIN INDUSTRY

The concept of health must be evaluated against the individual's capacity to live effectively, i.e. to perform his work well, without harm to himself, and to attain satisfaction for his physical, emotional, and intellectual needs. It is the harmonious adjustment to life that in the final analysis constitutes good health. It is regrettably true that an interest in disease is far more prevalent and widespread than an interest in good health. Nevertheless, the very fact that so many are possessed of this deep and personal interest in sickness may be useful in guiding them to a positive idea of constructive health. They may be taught to recognize early symptoms and signs before disabling pathological changes result; they may be made aware of the importance of early and adequate care to prevent permanent disability. From there, they may be led through health counselling to better work and play habits, better personal hygiene, and better nutrition. It is particularly necessary to free them from superstitions and overcome the folklore upon which many have been reared.

Many methods may be employed in the field of health education. The approach may be a direct one through personal contact with the individual workers whenever the opportunity offers, or by means of group instruction such as talks, formal lectures, films, plant magazines, articles, and pamphlets. It must not be forgotten that many of the measures advocated for the promotion of the

health of the worker are beyond his control. The approach must then be made to those responsible for the provision of proper conditions of work.

Physical Examinations

Physical examinations provide favourable opportunities for the health education of the worker.

The initial examination is primarily designed as a placement examination, the purpose of which is the assignment of duties for which the applicant is best suited.

It is possible at this time to talk to the worker regarding his personal health and to attempt to arouse an interest in health matters as they affect him and his family. Particular attention should be given to the hazards of the operation for which he has been selected, and instruction given in protective measures. Often it is left to the workman to discover the risks of the work for himself, and often it is only when he is injured or falls sick as a result of his work that the risk is discovered.

At the initial and at subsequent examinations the workman may be advised in the correction of disorders and defects that have been brought to light. The person with a heart lesion will be taught to work and live within his cardiac reserve; to the obese will be stressed the importance of dietary reduction, and the suspicion of excessive consumption of alcohol will lead to careful and tactful investigation.

Physical symptoms that have their origin in emotional stress often respond to explanation of the causative factors. Here, particularly, the medical officer in industry is in a position of advantage. His knowledge of personal relations and possible conflicts that exist in the work environment often enable him to assist in their eradication. But the stressful conditions may lie in the home, and it is by the combined efforts of the patient's home doctor, with his knowledge of domestic conditions, and the industrial medical officer that the workers' interests are best served.

Group Approach

In planning a health-education campaign within a factory, it is advisable to decide on a particular subject and use all available media to inform the workers of its various aspects and stimulate them to the intended course of action. Knowledge of the facts without incentive to act thereon, is valueless.

Subjects may be divided into those that affect the community generally and those that have local industrial application. Whatever medium is used, care must be taken not to exceed the intelligence of the group one wishes to influence. Our experience suggests that talks and plant magazine articles should be short and should not carry more than one or two ideas. As far as possible, generalities should be avoided. Posters should not be horrifying. In fact, they are often most successful when a serious subject is treated from a humorous angle.

Nutrition

A great deal has been written on the necessity for educating the industrial worker in the science of food and its use in the body. It has been urged that good eating habits among employees will increase their efficiency, decrease absenteeism and build up morale. To what extent, though, are improper dietary habits due to ignorance and to what extent to poverty? In this country precise information on the subject is lacking. On the evidence so far available it appears not improbable that economic considerations may have contributed as much to a suboptimal nutritional state as has lack of knowledge. But ignorance nevertheless urgently needs to be dissipated. In the movement from the country to the towns, especially in the case of the African workers (many of whom are bachelors or married men living away from their wives), successful adjustment from satisfactory primitive diets to food obtainable in the towns is proving difficult.

Frequently the living-conditions, both for Europeans and non-Europeans, are such that facilities for the proper preparation of food are totally inadequate. Many workers live in rooms and find it impossible to take lunch to work. Difficulties are also encountered by the shift-worker in obtaining a hot meal when he comes off duty at a time that does not coincide with a normal

* Valedictory address Port Elizabeth, February 1961.

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meal time. There is little doubt, too, that many workers have poor food habits which tend to affect their health adversely.

The wise industrialist has recognized these facts and has taken steps to provide nutritious meals at prices the workmen can afford. Some employers have gone to the extent of supplying free meals. The home diets should be studied and the canteen menus designed to compensate for the common inadequacies. At the same time suitable educational material should be planned so as to lead to the development of good health habits. Instruction should include such items as dietary planning, marketing, cooking, and serving. It is in these preliminary processes that the best of scientific schemes may go awry.

Racial and local food customs deserve far more consideration than they are usually accorded. Sometimes they are sound and represent the adaptation of the individual to conditions of climate and local circumstance.

Education and Food Handlers

The growth of communal feeding has brought problems of its own. It places a great responsibility for the careful handling of food upon the medical supervision of the kitchen staffs of canteens, since a careless person in such an establishment may initiate an outbreak of food poisoning affecting some hundreds of persons. Education in the principles of food handling for those responsible for the running of canteens, and also for the individual food handler, is a matter of prime importance.

Advice to Managerial and Supervisory Groups

It is by means of his advice to and its acceptance by the managerial and supervisory groups that the doctor can most effectively influence the health of the working man.

In such matters as the cause and nature of industrial fatigue, the correct placement of employees, working capacity in relation to sex and age, the indications for periodic medical examinations, ventilation, lighting, noise, devices for the protection of the worker against injury and disease, and the recognition of the accident-prone workman, the industrialist seeks advice and assistance.

The anatomist must bring his knowledge to the design of machinery for its efficient and safe operation; the physiologist and psychologist are called in in consultation for the elucidation of fatigue factors; and the surgeon and physician are consulted in the rehabilitation of those who have been disabled by injury or disease. It requires the combined effort of numerous experts, collaborating with the industrialist and his technicians, to bring about safe and healthy working conditions and satisfactory human relations.

Foremen's meetings provide most useful occasions on which the various factors affecting the health of employees may be aired. Hours of work, rest pauses, the optimum alternating periods of day- and night-shifts, significant incidence of sickness in particular departments, and many other subjects come up for discussion and decision. The industrial medical officer (full-time or part-time) will be expected to be well informed on all such matters and will be called upon for his opinion.

As much attention should be paid by those in control of the worker to his psychological needs as to his physical. The mental health of the industrial worker and his adjustment to his environment are important components of a health programme in industry.

The significance of this aspect of the worker's health was emphasized by Russell Fraser's study on the incidence of neurosis in industry. His survey showed that 10% of workers had suffered from definite and disabling neurotic illness, and a further 20% from minor forms of neurosis, during the course of the 6 months of the investigation. Neurotic illness caused between a quarter and a third of all absence from work due to illness, and was responsible for the loss of over 1% of the men's possible working days and of 2-4% of the women's—a loss equivalent to an annual absence of 3 working days by every man and 6 days by every woman studied.

Our own records do not indicate an incidence even approaching that revealed by Russell Fraser. This, I feel, is due to the reluctance of the doctor to state his opinion on the medical certificate. Yet were he to do so, it might lead to the finding and curing of the basic trouble.

THE VALUE OF STATISTICS

The maintenance and interpretation of statistics of illness are essential in the practice of occupational medicine. Their recording

and analysis by department and operation may point to unsuspected health hazards, or the reverse may apply—an operation commonly supposed to lead to ill-health may prove to be innocuous. This fact may be used to reassure workers and management alike.

Statistics of illness are largely based upon the data obtained from the certificates submitted by the doctors attending the workmen, and their value is directly related to the accuracy of these diagnoses. It is fully appreciated that circumstances are often such that a diagnosis cannot be made with certainty when the patient is first seen, or even after careful investigation, but such unqualified diagnoses as tachycardia, gastritis, asthenia, cephalgia, pyrexia, colic, etc. are of little value as the basis of a statistical structure. Nevertheless, even these vague terms may, when seen in relation to the successive entries in an individual's medical history card, lead to significant interpretation. Headache, asthenia, and colic, when related to the man's occupation, may quite easily lead to the diagnosis of lead poisoning in an operation where this hazard was overlooked, or repeated absence on Mondays due to gastritis may reveal unsuspected addiction to alcohol.

HEALTH HAZARDS OF THE EXECUTIVE

A most important group in industry, one upon whose balanced functioning the whole industrial structure depends, is the executive group. There are factors related to the heavy responsibilities borne by this group and its accepted way of life that render its members especially vulnerable to emotional illnesses and their attendant physical manifestations.

The need to safeguard the health of the management group gained recognition during the last war, mainly in the United States, where so-called executive health programmes were widely adopted. The main constituent of these programmes came to be the periodic, usually annual, physical examination.

Difference of opinion exists, both on the value of these investigations and their scope. In some programmes the examinations are carried out on an inpatient basis, several days being spent at a clinic. A large number of laboratory and X-ray investigations are carried out—every orifice of the human anatomy receiving deep (and often painful) probing. It is, however, understandable that a fairly high lapse rate has been observed in these particular programmes. In others a simple clinical examination, with a minimum of radiology (chest X-ray) and laboratory work is carried out, e.g. haemoglobin and blood cholesterol determinations, a Wassermann test and an electrocardiographic examination. Special examinations are carried out only when indicated.

Recently introduced in the United States is a procedure known as 'The emotional check-up', involving admission to a clinic for a 6-day period of intensive psychiatric investigation.

It has generally been accepted that the degree of health is directly related to income, and that the morbidity rate is in inverse proportion to earning capacity. This is in many respects true, but there remains for consideration the serious exceptions of hypertension and arterial disease with their highest incidence among executives. The factors that produce these conditions are still conjectural. Nevertheless, the fact that they afflict the emotionally tense, ambitious, and self-driving individual so frequently is more than merely a coincidence. He usually has bad eating habits. Either he omits his luncheon altogether, possibly snatching a hurried sandwich while dictating a so-called urgent letter, or he uses the lunch-hour or two to entertain other business personages. In the latter case he is likely to be guilty not only of indiscretions as regards his eating and drinking, but what is probably more serious, he gives himself no opportunity to relax before plunging into an afternoon of strenuous effort. He tends to smoke excessively. Whether smoking as such is the cause of arterial degeneration, or whether it is an expression of nervous tension which in turn leads to this condition, is a moot point. There are a number of authorities, however, who are convinced that smoking does shorten life, irrespective of its relationship to lung cancer.

Again, in the use of alcohol one must determine not only the ill-effects that may accrue from the amount that is consumed, but also the reasons for excessive drinking, when such is the case. Apart from social reasons, alcohol is often taken by the executive who is harassed, depressed, and anxious to escape from an intolerable situation.

Enquiry into his recreational and social habits will almost invariably reveal that he overtaxes his body and mind unceasingly, that he carries the sense of urgency and drive into all his activities—whether at work or at play. Strenuous days at the office are followed by rounds of cocktail parties, long hours at night clubs, or successions of public functions with heavy menus. His week-ends are as tightly scheduled as his working days, involving quite often long and fast motor journeys or several rounds of golf, all of which are timed to the minute. Another cause of stress is overambition or a false appreciation of values.

There are also executives of indifferent ability who find themselves in positions with which they are unable to cope except with an uneconomic expenditure of energy. Health and happiness are sacrificed in an endeavour to hold on to something which pride demands they retain. Delegation of duties or vacations are not indulged in for fear of replacement. They are restless, hypercritical and irritable, and these symptoms often have serious reactions on their staff.

Enough has been said to indicate the lines along which these hazards may be counteracted. The executive must be taught the art of living, which includes that of repose and relaxation. It will mean in many cases taking stock of human values and the acquisition of a philosophic acceptance of the setbacks and disappointments of this existence.

RECREATION

I have mentioned earlier the difficulties encountered in the work situation and indicated that they are rarely to be separated from the worker's social and domestic life. The high incidence of neurosis has also been touched upon. The influence of the work and social environment in the prognosis of alcoholism has received consideration. Having been recognized, how are these difficulties to be met?

With increasing leisure the subject of recreation assumes greater proportions. Surely it must be related to the occupational needs of the workman?

Occupational Needs

The occupational needs of the workman may be placed into 4 main categories—his economic reward and the satisfaction of his physical, emotional, and intellectual requirements.

The craftsman of old found, to a greater or lesser extent, in his work a fulfilment of all these needs. He conceived, designed, made, and in many cases, marketed his own product. In these activities he attained a fully balanced creative existence.

The function of the workman as a unit in a mass-production organization lies in whatever ability he may possess to match the machine in its characteristic of rapid, repetitive, identical movement. In order to reduce the period of training and to speed up the rate of operation, work is broken up into simpler components, each pattern of movement requiring an ever-decreasing skill to perform. It is therefore becoming increasingly rare for a workman to find a satisfactory outlet for his powers, even the demand on his muscular assets being reduced as the machine approaches perfection. The powers of his mind and his emotional potential are virtually denied all expression in the work he is required to perform. It is perhaps this state of biological imbalance and frustration that explains to some extent the conflict and strife that disturbs the present social system, and the high incidence of psychoneurosis among the industrial workers.

If work, as such, is intrinsically without satisfaction, and is undertaken only as a means of earning a livelihood, the workman will look elsewhere for the satisfaction of his needs.

Types of recreation—active or passive. It is through recreational activities that the physical and psychological deficiencies of the work situation may be compensated. These activities may take the form of games, individual or collective hobbies, and artistic and cultural pursuits. In each case participation may be passive or active.

It is frequently assumed that only the active rôle is valuable, and that the part of the spectator has little to recommend it. Often one hears condemned those who spend their leisure watching cricket or football. This, I feel, is a superficial view which takes no account of the emotional and intellectual benefit that the critical follower of such sport derives from all that goes before, during and after the game.

Creative hobbies and cultural pursuits. It is, however, in the creative use of leisure that the individual is likely to gain most benefit and fulfil a need that is in many cases lacking in his work.

Recreational facilities such as playing fields, hobbies clubs, and social centres may be created by large industrial firms, or worker groups may organize their own independent institutions, possibly receiving financial support and advice from their employers.

It is important, whichever system is adopted, that the administration of these schemes should be largely in the hands of the members, who, in the responsibilities of office, will find an outlet for whatever socially useful abilities they possess.

Educational aspects. In most schemes devoted to the use of leisure, the educational needs of the worker are stressed. However, examination of the ideas behind them often reveals that the concept of education is limited to the acquisition of knowledge for vocational purposes, usually for employment that will lead from the workshop to the office. Education appears to have become identified with higher vocational training.

This I feel is not its major purpose; it is in the development of the individual and the augmenting of his capacity to lead a full life—mentally, physically and morally—that education attains its greatest value.

ALCOHOLISM

This is a problem that is giving rise to increasing concern in industry. However, until management throughout its ranks recognizes compulsive drinking as an illness—granted, often with a moral or sociological overlay—the Health Department cannot deal effectively with it. A radical alteration in thinking and the eradication of deep-seated prejudices are nearly always necessary. A definite constructive policy must be established whereby alcoholism is considered on exactly the same terms as any other illness, even its acceptance for the sick fund and medical aid benefits normally provided. A carefully planned educational programme, extending over many months and directed to all ranks of management and supervision, must be instituted.

With proper treatment a high rate of cure can be expected. By cure is meant that a state of complete abstinence is established and maintained. The true alcoholic should never drink again. If he does, his old, uncontrolled drinking pattern will recur.

As in most other illnesses, the earlier the disease process is recognized and treatment started, so much better is the prognosis.

Danish authorities cite the following 6 criteria as favouring a good outcome: The patient should be in employment, he should seek treatment voluntarily, he should be married, he should live in a house in preference to a hotel or lodgings, he should not fall into the very young age group (addiction firmly established at an early age spells a severely unbalanced personality), and he should not have resorted to the use of methylated spirits, eau de Cologne, etc. The indications are that a successful result is more likely before the home is broken up or the job lost. *It is therefore the early signs of compulsive drinking that the management (and the potential alcoholic, too) must learn to detect. It is then that appropriate action must be taken.*

It is not always possible to get cases early and quite often one has to deal with an employee verging on the 'lost week-end' type and the stage when he is virtually unemployable. Even then the outlook is by no means hopeless, and employees (and that includes persons of all races, ranks and status) who appear fit only for the scrap-heap, may often be restored to useful function.

It may be asked what the extent of the problem of alcoholism is. It has been estimated that there are in South Africa between 80,000 and 90,000 alcoholics who are in need of treatment.

In the United States a recent survey showed that 65% of the adult population take alcohol, of which one in 80 becomes an alcoholic. The Medical Director of the Consolidated Edison Company of New York estimates the incidence of alcoholism in industry as 2-3% of employees. At present there are over 100 cases of alcoholism in the medical department of my own company, the employee strength of which lies between 3,000 and 4,000. And I am sure that there are those who are in need of treatment who are not receiving it.

The high cost of alcoholism to the community becomes evident when not only the adverse effects of the disease on the sufferer and his family are considered, but also the repercussions within

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the industrial scene of the high absence rate, the impaired efficiency and judgment, the aggressive, arrogant behaviour, and the unpredictable conduct of the addicted drinker. This, combined with the fact that the disease in its disabling form has its highest incidence in the 35-55-year age group, i.e., among that group of employees who have attained their greatest value to the organization, the extreme seriousness of the problem becomes manifest.

Characteristic of the problem drinker and a clue leading to his identification, is a high absence rate. In the United States this rate is regarded as being between 22 and 25 days per year. Our experience is similar, but periods of absence due to alcoholism are often disguised and covered by medical certificates bearing such vague diagnoses as asthenia, headache, gastritis, fatigue, tachycardia, vertigo, etc. In this connection it may be of interest to compare the absence rates due to sickness in the 3 main racial groups employed in the company with which I am associated. The number of days lost annually due to certified sickness average, for European males 5, Africans 3½ and Coloured employees 7. It is remarkable that the Coloured rate should be twice that of the African. Is it not possible that the diagnoses mentioned above conceal the scourge of alcoholism—a condition well known to be widespread among the Coloured people? We believe it to be so. And, if so, would it not be far better to record accurately the actual trouble, which in turn would lead to the recognition and treatment of the afflicted persons?

Incidentally, it has been a source of some astonishment and gratification to note the number of Coloured employees who, when it became known that treatment was freely available, sought relief from their dependence upon alcohol. This, I feel, illustrates the fact that when the stigma attaching to the alcoholic as a moral degenerate is removed, he is likely to come forward voluntarily to seek the treatment he so badly needs.

As yet, insufficient contact has been established between employers and the clinic. It is my opinion that a successful outcome in many cases will depend entirely upon the close cooperation of doctor and employer. In fact, treatment will often only be possible when the employer, or someone delegated by him, takes an active interest in it. It is simply a question of practicalities. For instance, it may be necessary to administer a deterrent drug daily for long periods, and daily attendance at the clinic is nearly always quite impossible.

What of the patients who do not respond to treatment? Firstly, it must be realized that alcoholism is a relapsing disease, and that occasional 'falls from grace' do not necessarily point to a bad prognosis. However, treatment may fail, and when it does it is only logical to handle the disposal of the incurable employee on the same basis as the disposal of those unfortunate individuals who are disabled by any other disease.

With reference to the problem of alcoholism in general, there are 3 points that stand out clearly:

1. The imperative need for a community education programme to remove the stigma attaching to the condition; to change the attitude of prejudice and disparagement to one of sympathetic understanding, and the realization that much can be done to help the alcoholic.
2. The need for specific education in industry. Industry needs to be informed of the true cost of alcoholism, disguised though it may frequently be, and the rôles that can be played by the industrial plant and the medical profession together.
3. The need for further research and more specific knowledge on alcoholism by both layman and doctor. Relative to this is the completely defeatist attitude so often shown by members of the medical profession. Here I shall quote from a recent editorial in *The Practitioner*: 'Medicine's failure to grapple with the problem of alcoholism is a standing disgrace. Cirrhosis of the liver, delirium tremens, alcoholic neuritis, alcoholic gastritis—all these the medical student hears about, but scarcely a word about alcoholism, except possibly a passing reference during his lectures on psychiatry. The result is that when he embarks upon general practice he is completely at a loss when he comes up against a patient suffering from alcoholism. Even if he consults a senior partner or colleague he is unlikely to obtain any help. When his faltering efforts to treat the patient fail and he decides that in-

stitutional treatment is necessary, he finds that few such places exist outside mental hospitals and that the mere suggestion of admission to an institution may well have a final demoralizing effect upon the unfortunate patient.

This is no travesty of the position today. It is a factual account of a state of affairs which demands urgent attention. Medical students and practitioners must receive instruction in the diagnosis and management of alcoholism, and facilities—outpatient and inpatient—must be provided in general hospitals for the treatment of these patients. Only when such clinics with an appropriate number of available beds for those requiring inpatient treatment, are provided, will the problem of alcoholism be brought under control.

As I mentioned earlier, we are thankful for the facilities for treatment existing in this town. The Clinic is the first of its kind in the country and the model for similar clinics operated by general practitioners in other parts of the Province.

Inpatient treatment is available here at the Provincial Hospital and special treatment obtainable at the Park Road Hospital, Rondebosch, Cape—an extension of Groote Schuur Hospital. The essential follow-up treatment is provided at the clinic, where a social worker has recently been appointed.

That these facilities exist is largely due to the progressive thinking of the Provincial Secretary and the Director of Hospital Services in the Cape. To them I should like to pay tribute as well as to Dr. J. H. McLean, Superintendent of the Provincial Hospital, for his cooperation and help, and the group of 5 general practitioners who ran the SANCA clinic for nearly 2 years and now man the Provincial Hospital Clinic. They have given generously and unstintingly of their time and skill. So, too, have the members of the SANCA Committee and its honorary secretaries. To all of them, industry, the medical profession, and the community generally are deeply in debt.

REHABILITATION

Until the last war all types of labour were abundant in this country and there was no urgent need to conserve the nation's man-power. The wastage due to sickness or injury was accepted as inevitable, and no thought given to the rapid restoration of function of the disabled workers or their employment to the fullest extent possible.

With the vast industrial expansion of the Union's industries and the shortage of skilled labour, the need for the rapid re-training and re-abling of the incapacitated worker has become of vital importance.

The concept that rest is therapeutically indicated by all sickness or trauma dies hard. This is apparent despite the increasing practice of early ambulation following surgery. One is often struck with the long periods of needless absence of men who remain away from work on the sincere advice of those undertaking their care. Unfamiliarity with work processes or the practicability of making adjustments to allow for the disability, influence the doctor to defer the return to work, to the detriment both of his patient and of production, which ultimately means the economy of the country.

There are, however, large numbers of patients who, at the completion of hospital treatment, are not employable in their previous jobs. This country is seriously lacking in rehabilitation facilities and, in the absence of further care, patients languish in their homes, unhappy and depressed and often ill-nourished owing to reduced income. With little or nothing to occupy their time, they at best make a protracted recovery. Frequently their skills are lost to them, re-training is unavailable, and they eventually find themselves relegated to the dust heap of the permanently crippled.

The practice of rehabilitation for any doctor begins with the belief in the basic philosophy that the doctor's responsibility does not end when the acute illness is ended or surgery is completed; it ends only when the patient is trained to live and work with what is left. This basic concept of the doctor's responsibility can be achieved only if rehabilitation is considered an integral part of medical service.

Is it not to that end that we as an Association should aim?

KOLLEGE VAN INTERNISTE, CHIRURGE EN GINEKOLOË VAN SUID-AFRIKA COLLEGE OF PHYSICIANS, SURGEONS AND GYNAECOLOGISTS OF SOUTH AFRICA :

Ten candidates from different centres in the Union were admitted as Fellows of the College of Physicians, Surgeons and Gynaecologists of South Africa at a special graduation ceremony at the Medical School, Cape Town, on Friday 5 May 1961.

The fellowships were conferred by the President of the College, Mr. J. A. Douglas. In his address, the President, Mr. Douglas said: 'As President of the College of Physicians, Surgeons and Gynaecologists of South Africa, it is my pleasant duty to admit you to Fellowship of the College.'

'Our very young South African College is an off-shoot of the Royal Colleges of Great Britain and Ireland, whose roots are firmly planted in antiquity, and who possess a noble heritage of honesty, integrity, and service to the sick; and let me remind you, medicine is a bridge which can cross any barrier, be it white or black, right or left. Thus, when the Council of the College admits you as a Fellow, it does not only signify that you have satisfied the examiners as to your professional ability, but it also denotes that the College Council is satisfied that morally you qualify for admission to their much coveted ranks. This naturally implies that you are required to carry on the heritage of the sincere, efficient and honourable service that has characterized the Colleges for many generations.'

'Today you are in the unique position of looking back upon many years of arduous study and physical exertion, and looking forward to the years of promise and fulfilment. Remember that admission to the College has put upon you the stamp of quality, but not of omniscience.'

'In the famous words of Morgagni "You who have learnt have at least learnt to doubt"—"Those who are ignorant, are in no doubt at all".'

'On behalf of the Council Founders and Fellows of the College, I have much pleasure in admitting you to Fellowship, and I charge each of you with the responsibility of promoting the College welfare and ever maintaining its reputation. We all offer you our sincere congratulations on your success, and wish you many years of good health and happiness in the service of medicine.'

'Namens die Raad en lede van die Kollege, heet ek u welkom. Lidmaatskap van die Kollege is 'n prestasie vir u en 'n eer vir die Kollege. As Lid, rus op u die verpligting, nie net om die prestige van die Kollege hoog te hou nie, maar ook die standaard van diens en vooruitgang van die Kollege.'

'Dit is met genoë dat ek u kan gelukwens, en daarby moet ek voeg—gee diens aan u pasiënt en kollega, en verhef so die naam van die Kollege.'

The following Fellows were admitted to the College:

Physicians: Dr. M. A. de Kock, and Dr. D. J. Pudifin.

Surgeons: Mr. I. Abromowitz, Mr. J. A. Engelbrecht, Mr. L. C. Jansen van Rensburg, and Mr. M. B. McKenzie.

Obstetricians and Gynaecologists: Dr. J. P. du Toit, Dr. H. Edelstein, Dr. H. Glietenberg, and Dr. P. G. Roose (the only successful woman candidate).

The diploma in midwifery for the College of Obstetrics and Gynaecology was bestowed on Dr. C. Lombard, Dr. F. W. te Groen, and Dr. F. V. Trotter.

The following candidates were successful in the primary examinations for the Fellowship of the College of Surgeons: Dr. C. Froman, Dr. P. D. Seaward, Dr. V. E. Sorour, and Dr. P. v. d. B. S. van Niekerk.

The following candidates were successful in the primary examinations for the Fellowship of the Faculty of Anaesthetists of the College: Dr. G. S. Sennett, Dr. C. M. Sliom, and Dr. R. J. H. Tapson.

The President of the College, Mr. J. A. Douglas, appearing for the first time in his official capacity of President, is congratulating Dr. P. G. Roose, the only woman graduate, as a Fellow of the College of Physicians, Surgeons and Gynaecologists of South Africa. Dr. S. J. Saunders (centre) is the newly elected Registrar of the College. (Photo Cape Argus.)



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AMPTELIKE AANKONDIGING : OFFICIAL ANNOUNCEMENT

KORT VAKANSIETOER NA EUROPA

Navrae in Pretoria het dit aan die lig gebring dat dit moontlik mag wees vir die Vereniging om 'n Boeing 707 Straalvliegtuig te huur met die oog daarop om dit vir lede van die Vereniging moontlik te maak om met 'n kort vakansietoer na die Verenigde Koninkryk en die Vasteland te gaan gedurende 'n tydperk wat buite die seisoen val.

Die vliegtuig kan 131 passasiers neem en, mits al die plekke geneem word, sal die Vereniging in staat wees om die sitplekke aan te bied teen £145 (R290) elk vir die retoer-reis (d.w.s. Johannesburg/Londen/Johannesburg). Dit is meer as £100 (R200) laer as die gewone toeriste-tarief, maar as al die sitplekke nie bespreek word nie, sal die reisegeld proporsioneel hoër wees.

Aangesien die Vereniging self verantwoordelik sal wees vir die volle huurgeld, sal verdere reëlings nie getref word nie totdat vasgestel is hoe groot die aanvraag vir sitplekke is.

Sal alle lede wat graag gedurende Kersfees oorsee wil wees, en miskien ook die wintersport wil bywoon, dus asseblief so gou as moontlik met die ondergetekende in verbinding tree.

P. D. Combrink
Assistent-Sekretaris

Postbus 1521
Pretoria

SHORT HOLIDAY TRIP TO EUROPE

Enquiries instituted in Pretoria have revealed that it might be possible for the Association to charter a Boeing 707 Jet Airliner for the convenience of those members who might wish to take a short holiday trip to the United Kingdom and the Continent during the off-season.

The aircraft accommodates 131 passengers and, provided it can be filled, the charter price will allow the Association to offer seats at £145 (R290) each for the return trip (i.e. Johannesburg/Londen/Johannesburg). This is more than £100 (R200) lower than the normal economy class fare, but, if all seats are not occupied, the fare will be proportionately higher.

As the Association will itself be held responsible for the full charter price, final arrangements will not be proceeded with until the demand for seats has been ascertained.

Will all members who are desirous of spending, say, a white Christmas whilst attending the winter sports, therefore please communicate with the undersigned as soon as possible.

P. D. Combrink
Assistant Secretary

P.O. Box 1521
Pretoria

SUIDELIK-AFRIKAANSE HARTVERENIGING : TAK STELLENBOSCH
(VROEËR HART-LONG GROEP, UNIVERSITEIT STELLENBOSCH)

Die vergadering wat gehou is op 13 April 1961 is ingelui deur 'n bespreking van 'Morfologiese probleme in verband met die parietale fibroplastiese endomiokarditis' deur prof. H. W. Weber. Omdat gevalle van parietale fibroplastiese endomiokarditis gewoonlik eers in laat stadium gesien word, wanneer fibrose reeds bestaan, moet in elke geval ondersoek word wat die oorsaak van die fibrose is. Volgens M. P. Hertel se gemodifiseerde klassifikasie van parietale endokardfibrose moet onderskei word tussen:

1. Parietale endokarditis.
 - (a) Primêr.
 - (b) Sekondêr.
 - (i) vanaf die kleppe, en (ii) vanaf die miokard.
2. Trombogene fibrose.
3. Funksionele fibrose.

Daarby kom nog die kongenitale fibro-elastose van die endokard.

Die funksionele fibrose word deur dilatasie veroorsaak en kan selfs in gevalle van differie gesien word. Elke endokard-beskadiging kan tot 'n trombose lei. Uit die granulasieweefsel wat die trombus organiseer, ontstaan later die fibrose. Sekondêre inflammatoriese fibrose kan maklik gediagnoseer word.

In gevalle van primêre inflammatoriese endokardfibrose moet onderskei word tussen Davies se siekte, Becker se siekte, en Löffler

se eosinofiele endokarditis. In Davies se siekte word erge fibrose gevind met geen elastose en embolisme nie. In Becker se siekte bestaan 'n sereuse ontsteking wat die fibrose veroorsaak. Löffler se endokarditis is gekenmerk deur die eosinofilie.

Verder is daar nog 2 gevalle waargeneem wat ook 'n primêre sellulêre ontsteking van die parietale endokard toon. Hierdie soort endokarditis, wat nog nie beskrywe is nie, verskil van Löffler se endokarditis deur die afwesigheid van eosinofiele leukosiete in die infiltrate. Ook dié endokarditis lei op 'n latere stadium tot endokardfibrose.

Hierna het dr. H. P. Wassermann 'n kort oorsig i.v.m. die metodes om diffusiestoornisse te ondersoek, gelever. Daar is gewys op die feit dat versteurde longfisiologie hiels as ventilasiestoornisse, enersyds, en diffusie- en distribusiestoornisse, andersyds, onderskei moet word. Die onderskeiding tussen restriktiewe en obstruktiwe stoornisse is verouderd en berus op spiografiese informasie. 'n Tegniek vir die bepaling van koolmonoksied is beskryf en daar is aangedui hoe die persentasie CO-opname bepaal kan word. Vir oefeningsstudies is mens geïnteresseerd in die volume CO wat oorgedra word en nie net die konsentrasie nie. 'n Metode hiervoor is ook aangetoon. Die resultate met hierdie tegniek verkry, vergelyk goed met die resultate verkry deur werkers wat 'n infra-rooi analiseerder gebruik het.

IN DIE VERBYGAAN : PASSING EVENTS

The South African Geriatric Society (M.A.S.A.) has been notified that The Federal Council of the Association has approved the formation of the Society as a group within the Association.

The first clinical meeting of the Society will be held at the Cape Jewish Aged Home on Tuesday 6 June at 8 p.m., when the following members of the honorary medical staff of the Home will present geriatric cases: Mr. A. Helfet, Dr. M. Horwitz, Dr. S. Scher, and Mr. W. Silber.

All medical practitioners will be welcome, and are invited by the committee of the Aged Home to stay for refreshments after the meeting. Telephone: 28526.

Please note: The date of the meeting has been changed from Monday 29 May.

Dr. Victor Berman, radiologist, of Johannesburg General Hospital and Children's Hospital, left for Europe on 12 May and will spend 2½ months doing postgraduate work in Britain.

Frank Forman Medical Foundation: 1962 Award. The Board of Trustees of the Frank Forman Medical Foundation wish to announce that: (1) The sum of £700 (R1,400) will be available for postgraduate award as from January 1962. (2) In

terms of the Trust Deed, the Board of Trustees are directed to use their discretion in making the award, in such manner as shall promote or assist the study of medicine and/or medical research at the University of Cape Town or elsewhere. (3) The award may take the form of a *scholarship* to a medical graduate for postgraduate medical study for 1 year; and/or a *fellowship* to a university graduate for postgraduate medical research for 1 year; and/or a *grant*, either independently, or in conjunction with other research grants, to any person, institution, or body, for special medical investigation or research.

Applications are to be addressed to: The Secretary, Frank Forman Medical Foundation, 3 Park Road, Rondebosch, Cape, to reach him before 30 November 1961.

University of the Witwatersrand Medical Graduates Association: Postgraduate Refresher Course for General Practitioners. The next full-time, intensive Postgraduate Refresher Course for General Practitioners will be held from Monday 17 July to Friday 21 July 1961.

The Course will include paediatrics, anaesthetics, dermatology,

orthopaedics, general medicine, surgery, and obstetrics and gynaecology.

The fee for the Course is R10, payable with the application to the Secretary of the Medical Graduates Association, Medical School, Hospital Street, Johannesburg. The closing date for applications is 21 June. As the number accepted for the Course is strictly limited, early application is essential. Accommodation can be arranged if required.

The South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 5 June at 5.10 p.m. in the Institute Lecture Theatre. Dr. D. Mendelson will speak on 'Certain aspects of erythrocyte metabolism as a reflection of metabolic disorders in man'.

The College of Physicians, Surgeons and Gynaecologists of South Africa has been advised that the Council of the Royal College of Surgeons of England has established a post of Adviser in Surgical Training, the first holder of which is Sir Clement Price Thomas. Some of the duties of the Adviser were originated by Sir Gordon Gordon-Taylor, and are being continued by Sir Clement; these include advice to young surgeons from overseas, who are training in Britain, regarding their future surgical training.

Mr. Felix Machanik, orthopaedic surgeon of Johannesburg and Springs, is proceeding overseas for 3 months on a study tour of Great Britain and Europe, where he will be attending various orthopaedic clinics and hospitals. He will return to South Africa about the middle of August 1961.

Research Forum, University of Cape Town. The next meeting will be held on Thursday 1 June at 4 p.m. in the Tutorial Room of the Pathology Department, Medical School, Observatory, Cape. Dr. I. Sakinofsky will speak on 'Social and cultural determinants of psychiatric illness presenting in an urban general hospital'. This will be followed by a Staff Clinical Conference at 5.10 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. All who are interested are invited to attend these meetings.

Clinico-pathological Conferences will be held, in conjunction with the Department of Pathology, on Thursdays (other than those scheduled for Research Forum) at the same time and venue and are followed by Staff Clinical Conferences at 5.10 p.m. All doctors who would be interested in attending Staff Ward Rounds should communicate with the Secretary of the Department of Medicine.

NUWE PREPARATE EN TOESTELLE : NEW PREPARATIONS AND APPLIANCES

TOFRANIL—NEW STRENGTH

J. R. Geigy S.A. announce the introduction of the 10 mg. strength, in addition to the 25 mg., for their product Tofranil—used in the treatment of depression. This new strength has been introduced owing to the fact that elderly patients respond to the lower dosage, with side-effects reduced to a minimum. As a thymoleptic it has a lightening effect on mood.

Description. Each tablet contains 10 mg. of N-(gamma-dimethylaminopropyl)-iminodibenzilium hydrochloride.

Indications in Geriatrics. Depressive syndromes due to senility, arteriosclerosis and dysphoric moods, spasmodic crying, emotional incontinence, involutional depression, depressions due to chronic somatic disease and hypochondria, etc.

Advantages. The psychic transformation produced in elderly patients is not only beneficial to the patient, but to all persons having contact with him.

Dosage. 10 mg. daily for three days, 20 mg. daily for 4 days. During the second week 30 mg. daily, increasing to 40—50 mg. daily if necessary. After stabilization, reduce to maintenance dosage. The maximum dosage in geriatric patients is 100 mg. The treatment should be continued for three months, or longer if necessary, to ensure that the improved affective state remains as stable as possible.

Further information may be obtained from Messrs. Pharmakers (Pty.) Limited, P.O. Box 4125, Cape Town.

IN MEMORIAM

D. A. STUART SICHEL, M.B., CH.B. (CAPE TOWN),
D.A., R.C.P. & S. (ENG.)

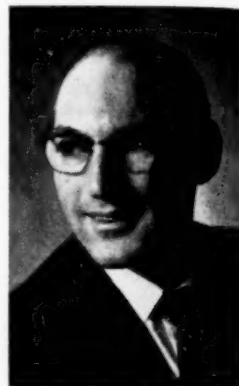
Dr. W. E. Laufer, of Swaziland, writes:

Dr. Donald Sichel died suddenly in Durban on 22 April, aged 41. He was a specialist anaesthetist, and he and I had been friends for 15 years. Donald Sichel was both a gentleman and a gentle man, who walked humbly before God and his fellowmen. The subject of anaesthesia had interested him since his student days, and throughout his short life his work was his delight. Sichel regarded anaesthesia not as a job, but a privilege; he never took his great responsibility lightly. His prime consideration was to establish rapport with his patients, 'to have the same psychic oscillations as the patient', as he used to say.

He was a master at allaying patients' fears, and at comforting them at critical times—and an operation is a crisis in the lives of most people. He was a man whom patients and surgeons trusted, and in whose ability to see them through they believed implicitly.

Donald Sichel showed very little interest in the bright lights and the gay life—he had no intention of becoming a social success. He was a family man, happiest in the company of a few good friends. In his younger days he was an accomplished pianist. Apart from this he showed a life-long interest in electronics, and had an encyclopaedic knowledge of radio, radar, television and all telecommunications equipment. A subject which interested him intensely was electro-narcosis, and he had some new and very advanced ideas on this subject; unfortunately his early death prevented him from doing any work in the clinical application of this subject.

Donald Sichel leaves a wife and two young children. To his bereaved family we extend our heartfelt condolences, and we share their sorrow. We are proud to have known him and to have been his friends, and his short life has been an example and an inspiration to us. May he rest in peace.



Dr. Sichel

SELVIGON SYRUP AND TABLETS

SKF Laboratories (Pty.) Limited announce the introduction of Selvigon, and supply the following information:

Composition. Each 3.5 ml. of Selvigon syrup contains 20 mg. of 2-(2-Piperidino-Ethoxy)-Ethyl-L-Aza-Phenothiazine-10-carboxylate hydrochloride. Tablets are also available, each containing 20 mg. of the active ingredients.

Description. Selvigon is a recently developed antitussive, which suppresses cough by central inhibition of the cough centre. It has no known side-effects, and in particular it does not depress respiration even at high dosage levels. The drug is therefore safe to use in coughing accompanied by respiratory distress. Selvigon is well absorbed when given orally, and it is presented as a pleasantly flavoured syrup. Tablets are also available. The antitussive value of 'Selvigon' has been amply confirmed by laboratory and clinical trials, and this, combined with its low toxicity and freedom from side-effects, establishes it as a cough suppressant of great therapeutic value.

Indications. Coughing associated with acute and chronic diseases of the respiratory tract.

Contra-indications. None.

Dosage. Children: Up to 1 year of age, 1-5 mg. (3-15 drops of syrup) three times a day; 1-12 years of age, up to 10 mg. (half a teaspoonful of

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syrup) three times a day; and over 12 years of age, up to 20 mg. (one teaspoonful of syrup or one tablet) three times a day.

Adults: 2 teaspoons of syrup or 2 tablets (40 mg.) three times a day. Half this dose is often

adequate. A fourth dose may be taken at bedtime.

Presentation. Syrup in bottles of 3 fluid ounces. Tablets in containers of 30.

Further information may be obtained from SKF Laboratories (Pty.) Limited, P.O. Box 38, Isando, Transvaal.

BOEKBESPREKINGS : BOOK REVIEWS

ADVANCES IN HUMAN NUTRITION

Recent Advances in Human Nutrition. By J. F. Brock, D.M. (Oxon.), F.R.C.P. (Lond.). xii+454. 35 illustrations. R5.00. London: J. & A. Churchill. 1961.

It is quite unusual to read a medical book which is as well written as this one—the language is clear, precise and unambiguous. Also helpful are the numerous cross-references. As far as the scope is concerned a less experienced author could easily have allowed the inclusion of metabolic processes not really germane to the subject or to a book of this kind.

It is worthy of note that many of the invited contributors are Professor Brock's co-workers and colleagues who have made significant contributions in nutritional research. To mention only a few: there is Dr. Hansen's demonstration that, whereas it requires an uncomfortably high intake of vegetable proteins (in the form of maize and/or pea flour) to achieve good nutritive value, the addition of only 10% of skimmed milk or 17% of fish meal will give adequate nutrition at intakes of reasonable bulk. With the frightening prospect of insufficient food supplies for the rapidly increasing world population, this work is of fundamental importance. At the other end of the spectrum in the field of over-nutrition, is Dr. Bronte-Stewart's more generally known work in dietary fats in relation to blood cholesterol and their probable effect on atheroma. The problem of oedema in deficiency states, as well as electrolyte abnormalities, is convincingly discussed by Professor Eales.

The subject of the 'nutritional' heart is a most fascinating one. Professor Thomson discusses it under the heading 'Cardiopathy of unknown origin' and Professor Eales deals with it also in the section on 'Abnormalities of fluid and electrolyte metabolism in malnutrition'. Professor Thomson quite rightly draws attention to the fact that the nutritional origin of these 'nutritional' heart conditions (not those due to beri-beri) has not been proved, and says that it is quite conceivable that more than one aetiological factor may be responsible. He wonders whether the 'nutritional' heart of Higginson, the cardiovascular collagenosis of Becker, and the endomyocardial fibrosis of Davies are not after all the same kind of heart disease. Having seen a number of 'hearts' in the collection of Davies in Kampala I am inclined to the view that some of his 'hearts' are different from those of the other workers. In some cases the disease can be recognized by inspection of the unopened heart.

To mention just a few interesting points encountered: Alcohol is not protein sparing—it leads to wastage of nitrogen and, moreover, has a high specific dynamic action. Low plasma sodium in cirrhosis is corrected by giving low sodium with a high protein diet. The section on 'Trace elements' might also be specially mentioned.

Professor Brock was wise to invite contributions from leading authorities whose work and experience have been in the (1) Spanish-Portuguese and (2) French-speaking countries. There was a misunderstanding with the author of the section dealing with experience in Germany, so that instead of a chapter dealing with general trends (which was the editor's intention) it covers trends in the nutrition of the aged. F.F.

THE PRACTICE OF MEDICINE

'The Practice of Medicine'—Sir John Richardson, M.V.O., M.D. (Cantab.), F.R.C.P. (London). Physician, St. Thomas' Hospital, London. (London: Churchill. 1961.)

This volume is the second edition of 'Richardson's Medicine', the first of which appeared in 1956. This edition has been thoroughly revised in all sections but is, refreshingly, slightly shorter than the original edition. Again it represents the combined effort of teachers

from a number of London medical schools. For the most part the authors are teachers engaged in the practice of general medicine or a medical speciality; each has set out what he actually teaches his students.

The result is a text-book, not an 'introduction', or an 'aid' or a 'guide' but a text-book which deals systematically with the whole content of medicine. With the undergraduate in mind it has been reduced to a reasonable minimum size and actually weighs 3½ lb. compared with 7½ lb. for a currently popular American text-book of Medicine! As a 'short' text-book it provides a volume sufficiently concise to be read from end to end by an undergraduate during his first year of clinical medicine; but the better undergraduate will find it inadequate as a book of reference.

For a text-book of multiple authorship the standard of the various chapters is consistently high. Much the most stimulating section of the whole book is the two-page first chapter by Sir John Richardson himself. Under the heading 'A Changing Subject' he discusses the influence of advances in basic sciences on clinical medicine. The subject matter of the book as a whole is conservative and correct and there are no weak sections. Of the various chapters, three on fluid and electrolytes (Prof. A. C. Dornhorst), neurology (Dr. Helen Dimsdale) and psychiatry (Dr. Dennis Hill) are particularly well done. Each chapter ends with a short list of a few publications under the heading 'A guide to further reading'. These carefully selected lists should be of great value to undergraduates.

For whom is this volume intended? Both the postgraduate physician and the upper-half-of-the-class undergraduate will demand a more detailed work as a systematic text-book; one which can be used as a book of reference. This volume would satisfy the requirements of the remainder of the class. Among postgraduates it will probably appeal to some general practitioners and to specialists in subjects other than medicine. For such readers it provides a source of correct, concise and up-to-date information. The printing and binding are good and the price moderate. H.L.F.C.

VOG- EN ELEKTROLIETEBALANS

Body Fluids in Surgery. Second edition. By A. W. Wilkinson, Ch.M., F.R.C.S.E., F.R.C.S. Pp. xi+276. 21s. net. + 1s. 5d. postage abroad. Edinburgh and London: E. & S. Livingstone Ltd. 1960.

Hierdie is die tweede uitgawe van 'n boek oor vog- en elektroliet-balans wat in 1955 vir die eerste keer verskyn het. Die skrywer is 'n outoriteit op hierdie gebied, en hierdie nou reeds bekende boek het in werklikheid geen aanbeveling nodig nie. Die skrywer behandel die fisiologie van water, natrium, en kalium in die liggaam, verstuurings van hierdie stowwe, die suur-basis reaksie van die liggaam, die veranderinge wat na trauma voorkom, die veranderinge wat veroorsaak word deur skok en verlies van dermafskeidings met die verhouding van hierdie versturing tot hart- en nieraandoenings, en die vog- en elektrolietbalans in kinders.

In hierdie tweede uitgawe is besondere aandag gegee aan die liggaamsreaksie na trauma en vog- en elektrolietbalans in die pasgebore baba wat 'n operasie moet ondergaan. Die skrywer is 'n praktiserende chirurg, en om hierdie rede is die boek geskrywe uit die praktiese, chirurgiese oogpunt. Dit is betreklik eenvoudig geskrywe, maar tog volledig. Hier en daar kom 'n klein tekortkoming voor. So byvoorbeeld is daar geen verwysing na die gevaar van metaboliese asidose wat na 'n periode van hipotensie mag voorkom, of na die gevaar van suurstof-terapie in respiratoriese asidose nie.

Hierdie boek kan met vrymoedigheid aanbeveel word.

B.J.v.R.D.

PSYCHOANALYSIS

Current Approaches to Psychoanalysis. The Proceedings of the 48th Annual Meeting of the American Psychopathological Association, held in New York City, February 1958. Edited by Paul H. Hoch, M.D. and Joseph Zubin, Ph.D. Pp. xiii+207. \$6.50. New York and London: Grune & Stratton, Inc. 1960.

This volume consists of 3 sections dealing with theoretical approaches, clinical applications, and evaluation studies. The theoretical section consists of a very brief outline of the general psychoanalytic theory of the neuroses, followed by 4 papers giving the main developments and conceptual differences according to the ideas of Rado, Horney, and those of H. S. Sullivan and Eirich Fromm as utilized by the William Alanson White Institute. Criticisms and conflicting views are well brought out in the discussions. The clinical section deals more with the general application of theory and consequently lacks case material, but there are two good essays on the basic practical features of the psychoanalytic method and the process of cure in psychotherapy. In section 3 there are described 3 techniques for appraising clinical changes occurring during treatment and also for the prediction of success in psychoanalytic training. These will require modification and improvement, but are a welcome contribution towards more exact evaluation.

The purpose of the symposium was to bring together some of the outstanding current trends in psychoanalysis by providing a platform for their representatives. W.A.S.

PEPTIC ULCERATION

Peptic Ulceration—A Symposium for Surgeons. By Charles Wells and James Kyle, M.B., M.Ch., F.R.C.S., F.R.C.S.(I). Pp. xi+260. 44 illustrations. 42s. net. + 2s. 1d. postage abroad. Edinburgh: E. & S. Livingstone Ltd. 1960.

This book attempts to present, in detail, recently acquired knowledge about peptic ulceration. The content of the various sections is therefore proportional to the amount of new material they contain, rather than to their relative importance in day-to-day surgery.

In this it has succeeded and consequently it provides a pleasant and painless means of acquiring the latest additions to our knowledge about this very common condition. As some basic knowledge is assumed, it is not suitable for undergraduate students, but postgraduates and all practitioners will benefit from reading this book.

The aetiology, complications, and treatment of peptic ulcers are particularly stressed and the various chapters are well written. Although there is not much operative detail the various techniques are clearly indicated.

BRIEFERUBRIEK : CORRESPONDENCE

MEDICAL FILMS

To the Editor: Through your columns may I appeal to any drug houses which distribute medical films, or films on allied topics, to be so kind as to send me catalogues of available films.

Our Association will screen these films at our member medical schools.

Medical Students' Council.
Medical School
Hospital Hill
Johannesburg
25 April 1961

Peter Arnold
President

TREATMENT OF SANDWORM (LARVA MIGRANS)

To the Editor: In the *Journal* of 15 April it was recommended¹ that iodized phenol B.P.C. 1934, be painted on the sandworm trail daily for the treatment of sandworm. Phenol is probably the most useful substance available for the treatment of this condition in children, but it is unnecessary to apply it all along the track, which is an indication of where the larva has been. The track is an inflammatory area or allergic reaction to irritation by the larva, which is usually present at the end of the track. Treatment is better directed to this area. If applied to the whole track it may cause severe and unnecessary burns. There seems little point in using iodized phenol since the antiseptic action of

The book is very well produced and freely illustrated, and can be strongly recommended as a most valuable source of information for routine reading. The extensive lists of references at the end of each chapter make it a useful source of reference. D.J.D.P.

DIE SEREBRALE KORTEKS

Some Papers on the Cerebral Cortex. Vertaal van die Frans en Duits deur Gerhardt von Bonin. Pp. xxiv+396. 42 illustrasies. 92s. 0d. Springfield: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 1960.

Die verhandelinge van 12 wetenskaplikes wat bygedra het om kennis van die serebrale korteks op te bou, word in hierdie werk bevat. Dit dek 'n tydperk vanaf 1824 tot 1917.

In die inleiding verstrek von Bonin interessante opsommings oor die verskillende skrywers en skets hy die ontwikkeling van die begrippe wat mekaar aanvul en opvolg in die artikels van Flourens, Baillarger, Broca, Fritsch en Hitzig, Munk, Goltz, Meynert, Flechsig, Brodman, von Monakow, Cajal, Leyton en Sherrington.

Sommige artikels bevat beskrywings van klassieke eksperimentele werk terwyl andere weer 'n logiese beredenering is van destydse begrippe in 'n poging om die struktuur en funksie van die korteks met mekaar te verbind. Ons weet vandag dat baie van hulle gevolgtrekkings destyds nie suiwer was nie, maar wat Munk in 1881 gesê het, is vandag nog net so toepaslik, nl. as ons nogtans nog nie duidelikheid bereik het in verband met hierdie gedeelte van die korteks nie is dit hoofsaaklik te wyte aan die feit dat ons nog nie die nodige begrippe het om dit te analiseer nie'. J.F. v. E.K.

TROPICAL DISEASES

Tropical Diseases. Second edition. By A. R. D. Adams and B. G. Maegraith. Pp. x+540. 72 illustrations. R5.25 net. Oxford: Blackwell Publications Ltd. 1960.

The alphabetical format of this book is at first disconcerting, for it is surprising to find ainhum followed by amoebiasis and schistosomiasis followed by sickle-cell anaemia. The separation of schistosomiasis and filariasis from worm infections might annoy some readers, but nevertheless the book makes easy reading.

The famous authors have produced a clear concise exposition, and though some might object to the intentional dogma, the facts are readily available in a form likely to be appreciated by students and those needing a quick reference.

One would have liked more of the excellent pictures, but perhaps this is asking too much.

This is certainly a book for the shelves of those meeting tropical disease, and in particular for those whose contact with these diseases is intermittent. R.E.-D.

iodine is not useful. I personally use liquid phenol B.P. This is applied with a glass rod to the active area at the end of the track, using the end as the centre of a circle about the size of a twenty-cent piece. The objective is to burn the skin sufficiently to pucker or raise it.

At Addington Children's Hospital I have investigated this condition over the past 12 years, but have been unable to effect cures within 3 or 4 days as suggested by your correspondent. In fact, 52 methods of 'certain cure' have been offered through the years. We have undertaken controlled studies which have included arsenicals, 'hetrazan', various patent preparations, and more recently 2 gamma BHC as 'lorexane', and also 2% buphenium chloride, without any obvious success on analysis.

Prevention of the condition should be our prime object. In our series of cases, building sand was the most common source of infection—certainly much more common than beach sand. Dumps of building sand, humid after rain and easily infected by dogs, are excellent incubators for the larvae.

Gardiner Street
Durban
2 May 1961

Frank Walt

1. Correspondence (1961): S. Afr. Med. J., 35, 320.

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2. Inadequate
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